THE PREVALENCE OF LOW BIRTH WEIGHT AND ITS RISK FACTORS AMONG POSTNATAL MOTHERS IN THE SELECTED HOSPITAL IN MADURAI

A DISSERTATION SUBMITTED TO THE TAMILNADU DR. M.G.R MEDICAL UNIVERSITY, CHENNAI, IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE DEGREE OF MASTER OF SCIENCE IN NURSING

MARCH – 2010

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K. ARUNA

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A STUDY TO DETERMINE THE PREVALENCE OF LOW BIRTH WEIGHT AND ITS RISK FACTORS AMONG POSTNATAL MOTHERS IN THE SELECTED HOSPITAL IN MADURAI.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

ABSTRACT

“A study to determine the prevalence of low birth weight and its risk factors among postnatal mothers in the selected hospital in Madurai”.

This study was conducted in government Rajaji hospital in madurai. A quantative approach was used for this study and descriptive research design was applied. The population selected for this study was mothers of low birth weight newborns. The study sample was selected by using purposive sampling technique consisting of 60 samples who fulfils the inclusion criteria. The main study was conducted for 6 weeks.

OBJECTIVES

- To find out the prevalence of low birth weight babies in the selected hospital in Madurai.
- To identify the level of risk factors for low birth weight among postnatal mothers in the selected hospital in Madurai.
- To find out the relationship between the low birth weight and its risk factor among postnatal mothers in the selected hospital in Madurai.
- To find out the association between low birth weight and the selected demographic variables such as, age, educational status, occupation, type of family, religion, income of the family, area of residence, type of marriage, nutritional pattern, order of the child, sex of the baby, gestational weeks.
- To find out the association between risk factors and the selected demographic variables such as, age, educational status, occupation, type of family, religion, income of the family, area of residence, type

of marriage, nutritional pattern, order of the child, sex of the baby, gestational weeks.

HYPOTHESIS

- There will be a significant relationship between low birth weight and its risk factor among postnatal mothers in the selected Hospital in Madurai.

- There will be a significant association between low birth and its selected demographic variables such as, age, educational status, occupation, type of family, religion, income of the family, area of residence, type of marriage, nutritional pattern, order of the child, sex of the baby, gestational weeks.

- There will be a significant association between risk factors and the selected demographic variables such as, age, educational status, occupation, type of family, religion, income of the family, area of residence, type of marriage, nutritional pattern, order of the child, sex of the baby, gestational weeks.

ASSUMPTION

- Every child is unique and responds in a unique manner to uterine environment.

- Poor maternal outcome may be due to negligence of prenatal procedures and prenatal health behavior advice.

MAJOR FINDINGS OF THE STUDY

- Regarding Prevalence of low birth weight 48% were moderate low birth weight, 43% were very low birth weight and 9% were extreme low birth weight.
- Regarding level of risk factors the obstetrical factors 63% mild, 33% moderately and 3% Severely influencing the low birth weight. Regarding antenatal factors 87% mild, 13% moderate and no severe risk factor. Regarding nutritional factors 33% were mild, 47% moderate and 20% severe. Regarding fetal factors 62% were mild, 28% moderate and 10% were severely influencing the low birth weight
- There was a positive correlation between low birth weight and risk factors.
- There was a significant association between the low birth weight and the selected demographic variables such as, age of mothers, educational status, income of the family, nutritional Pattern, order of the child and Gestational weeks.
- There was a significant association between risk factors and the selected demographic variables such as, type of marriage, educational status, family income, occupation, religion, area of residence.

RECOMMENDATION

- Similar study can be conducted using a large sample.
- Experimental study may be conducted to see the effectiveness for proper antenatal care on risk mother.

- Explorative study may be conducted to assess the knowledge of the mothers regarding LBW and its prevention.
- Explorative study may be done to assess the knowledge of the mothers regarding care of low birth weight babies.
- A comparative study can be conducted among rural and urban mothers.

CONCLUSION

Motherhood is a beautiful and joyous experience to a woman and birth weight is a critical determinant for survival in the neonatal period for future. If the baby is born with less weight, it is an anxiety for the mother and entire family. As per the record, the occurrence of low birth weight is high in Government Rajaji Hospital in Madurai District. Based on the results the investigator felt that there is a need for good antenatal care to prevent the occurrence of low birth weight. Interactive method of teaching that is question and answer with booklet is an effective method of increasing the knowledge of mothers regarding prevention of low birth weight

CHAPTER – I

INTRODUCTION

"The children of today are the adults of tomorrow. They deserve to inherit a safer, fairer and healthier world. There is no task more important than safe guarding their environment".

Dr. Groharlen Brundtlard
Director General, WHO

A healthy child- a sure future, a healthy childhood is precursor to healthy adulthood and they are asset to their parents as well as to the nation.

Motherhood is a beautiful and joyous experience to woman. The health of the mother during pregnancy is important to give birth to a healthy baby. The best and most precious gift that the mother can give the baby is the gift of health.

"Maternal mother's health is nation's wealth". There is a chance for the welfare of the world and when the condition of the women improve is not possible for a bird to fly on one wink.

The healthy citizens are the strong pillars of a nation. Mothers play a vital role in providing healthy citizens from the beginning of their life in the womb by taking care of them.

New born period is the most crucial period in which the new born undergoes various transitional process and gets accustomed with the external environment.

The neonates are soft, Tender and they require physical as well as psychological support in order to get adjusts to the external environment.

This adjustment requires the fullest developmental process in new born baby whereas in case of low birth weight this is lacking. Low birth weight refers to all new born whose weight is less than 2500 grams irrespective of the duration of Gestation. (**WHO 2005)**

Birth weight is a critical determinant for survival in the neonatal period and for future growth and development of the new born. The new born with the low birth weight starts life with a handicap and this may persist in future. Birth weight is known to be an important factor, which the new born baby adjusts to its surroundings.

Low birth weight infants are 46 times more likely to die in the neonatal period. Low birth weight and Preterm like to die before their first birthday and Survivors may suffer from a number of health problems and very low birth weight infants have 200- fold higher risk of neonatal death. (**Dansayaker p, 2007)**

The Average birth weight of a new born baby in our country is less around 2800 to 3000 grams. A neonate who weighs less than 2500gms at birth is a low birth weight baby**. (IAP 2006)**

Nearly 80 percent of neonatal death and 50 percent of infant's deaths occur among the low birth weight neonates. Even after recovering from neonatal Complications, some low birth weight babies are prone to develop malnutrition, recurrent infections and neuro developmental handicaps. There is emerging evidence that low birth weight growth

retarded neonates are more prone to manifest diabetes mellitus, hypertension and coronary artery disease in later life. Therefore low birth weight is a key risk factor for adverse outcome in life.

Low birth weight babies easily develop hypothermia or hyperthermia, hypoxia, respiratory distress, difficulty in digestion and feeding, frequent regurgitation, abdominal distention, diarrhoea, dehydration, poor growth, neurological problems and other problems, frequently exposure to infections, sepsis and death.

Infants less than 1500/2500 grams birth weight are risk for significant Nutritional deficiencies, poor pulmonary and renal outcome, poor drug interaction, brain immature, low resistance and delayed Neurological development.

In India incidence of low birth weight in the country is estimated to be 40% nearly 80% neonatal death and 50% of infant's death occur among Low birth weight new born. **(IAP 2006)**

WHO 1997, states that Bangladesh has the highest incidence rate as 50 % and India ranks second with incidence rate of 33%. Now the India ranks first place in low birth weight with an incidence rate of 40 %.

According a Manual integrated neonatal care, some low birth weight babies remain prone to develop malnutrition, recurrent infection and neurodevelopment handicap even after recovering from neonatal corporations. Low birth weight is the key factors for adverse out come in early life.

There are so many factors contribute the low birth weight. In that maternal risk factors also contribute the low birth weight. The following

Maternal risk factors contribute the low birth weight. Such as previous premature labor, hyperemesis, previous abortion, still born or low birth weight infant, Maternal age under 20 or over 35 years. placenta abruptio or Previa, Hydraminos, Ante partum hemorrhage, spontaneous onset of labour, incompetent cervix, isoimmunization, anemia or abnormal hemoglobin, Hypertension, poor weight gain, parity (>4 children), pregnancy weight less than 45.5kg, poor maternal nutrition, Toxemia, intrauterine infection, concurrent Maternal disease such as, renal or heart disease.

Maternal psychological factor also contribute the low birth weight babies such as single mother, low socio economic level, substance abuse, high attitude, heavy work, smoking

Some of the factors related to pregnancy also increase the rate of Low birth weight babies. These factors are anemia, weight loss, inadequate prenatal care, poly hydraminos, hypermesis, premature labor and abortions. **(IAP)**

DILEEP V. MAVELANKAR et al conducted a study to identify and quality of risk factors for preterm and term low birth weight in hospital. This study showed that late maternal weight, poor Obstetric history, lack of antenatal care, anemia and hypertension were significant risk for both term and preterm low birth weight.

Fetal factors also assisted with incidence of premature and low Birth weight infants like multiple birth, intrauterine infections and fetal distress.

NEED FOR THE STUDY

“Children’s Health is a Nation’s Wealth”

Nature is supreme in the way it looks after all the needs of the womb from such a protected intrauterine environment the fetus enters into the world of extra uterine environment. Healthy born babies rapidly adjust to their extra uterine environment with minimal assistance, but low birth weight babies are physically and neurologically constance and cannot tolerate the environmental changes and stress.

Low birth weight is the single most important factor determining the survival chances of the child. Many of them die during their first year. The infant mortality rate is about 20 greater for all low birth weight babies than for other babies. The lower the birth weight, the lower is the survival chance. Many of them become victims of protein-energy malnutrition and infection. Low birth weight is thus an important guide to the level of care needed by individual babies. Low birth weight also reflects inadequate nutrition and ill health of the mother. There is a strong and significant positive correlation between maternal nutritional status and the length of pregnancy and birth weight.

The newborn baby is a miraculous gift of nature, the result of 40 weeks of life in warm, snug and fluid filled intrauterine environment. After its birth, the intrauterine life presents a challenge to the normal new born baby. When the baby is born much earlier than expected and when it is very small and weak, the challenge to adjust to intrauterine life is much greater than for normal term babies.

Once the low birth infants is born, it is shifted to the NICU, which emphasizes on technical and continuous monitoring that may create barriers to human care. The fetus for a considerable period of time lives in the warm, moist, dark world of the womb, listening to the comforting beats of its mothers heart for no fault of his, he get prematurely and low birth weight separated from his mother and lies in a warmer, a midst unfamiliar sound.

WORLD

In worldwide, there is 22 millions of baby born on low birth weight and 21 millions belongs to developing countries. This imposes a heavy burden on health care and social system in developing countries.

Globally about 25 millions low birth weight babies are born each year consisting 17% all live birth nearly 95% of them in developing countries. The incidence of low birth weight varies widely between regions of world with levels of 32% in Southern Asia, 9% Eastern Asia, 11-16% of Africa, 10-12% in Latin America 36% in Bangladesh and India 30%. **(WHO 2004)**

Global incidence of low birth weight according to UNICEF analysis in the developing world (2006) states that India has the highest incidence rate as 7.8 million and sub. Saharan Africa ranks second with an incidence rate of 4 million. The rate in other countries in South Asia (excluded India) 3.6 million, Middle East / North Africa 1.4 million, Latin America 1.1 million. **(UNICEF 2000)**

M. Mohsin, F. Wong (2000) conducted a study to identify the influence of neonates and maternal factors on premature birth and low

birth weight in New South Wales and Australia. Multivariate analyses were used to explore the association of selected neonate and maternal characteristics with premature birth and low birth weight. This study shows that maternal hypertension, mother age less than 20 years, smoking behaviors during pregnancy contributes the low birth weight and premature baby. The findings of the study suggest that in order to reduce the incidence of low birth weight and premature births, health improvement strategies showed focus on antismoking campaigns during pregnancy.

INDIA

In India there are 20 millions babies born every year, about 7.5 millions are low birth weight. It continues to be a major public health concern. In India where most pregnant woman have little or no antenatal care and existing health care facilities remain grossly underutilized.

Park (1998) states that the prevalence of low birth weight in developing countries is high (20% to 40%) and in India it varies from 30 to 40%

In India, states and districts with high neonate and infant mortality a rate is one of the major causes of death.

TAMILNADU

In Tamilnadu, there was 10.8% of all birth constitutes low birth weight babies and also there is wide district level variation in the proportion. Chennai has the lowest proportion of 7.8% low birth weight babies. Dindigul has the highest 17%, Vellore is 11.3**%** **(WHO 2005)**

According to pediatric health care survey (2005), very low birth weight contributed 75.6% of the population attribute risk to stillbirth and neonatal death (29.4%). The reason for this high case fatality may be that mother's are not undergoing proper antenatal care, follow- up, nutrition and not taking continuous treatment for chronic disease.

Low birth weight episode is a multifactorial phenomenon. The presence of risk factors in individual woman indicates her increased chance of bearing on low birth weight infant. The incidence of low birth weight can be reduced by provision of high quality prenatal care and broad public information activities aimed at pregnant women and their families. It is better to prevent the birth of a LBW baby than to treat the later. Hence, it is responsibility of every nurse to identify the risk factor in the antenatal period itself. There by preventing the birth of LBW baby. The better the notion of risk understood the greater chance of reducing the undesirable outcome. Provided the expected action is taken in the appropriate time.

Baby birth weight is important factors for determining the survival rate. if the weight is decreased means the survival rate is also decreased and LBW baby prone to get so much of problem in their life.it is better to prevent the born of LBW than to treat later. With all these aspects which gave an insight to the investigator to conduct a study.

STATEMENT OF THE PROBLEM

"A study to determine the prevalence of low birth weight and its risk factors among postnatal mothers in the selected hospital in Madurai."

OBJECTIVES:

- . To find out the prevalence of low birth weight babies in the selected hospital in Madurai.
- To identify the level of risk factors for low birth weight among postnatal mothers in the selected hospital in Madurai.
- To find out the relationship between the low birth weight and its risk factor among postnatal mothers in the selected hospital in Madurai.
- To find out the association between low birth weight and the selected demographic variables such as, age, educational status, occupation, type of family, religion, income of the family, area of residence, type of marriage, nutritional pattern, order of the child, sex of the baby, gestational weeks.
- To find out the association between risk factors and the selected demographic variables such as, age, educational status, occupation, type of family, religion, income of the family, area of residence, type of marriage, nutritional pattern, order of the child, sex of the baby, gestational weeks.

HYPOTHESIS:

- There will be a significant relationship between low birth weight and its risk factor among postnatal mothers in the selected Hospital in Madurai.

- There will be a significant association between low birth and its selected demographic variables such as, age, educational status, occupation, type of family, religion, income of the family, area of residence, type of marriage, nutritional pattern, order of the child, sex of the baby, gestational weeks.

- There will be a significant association between risk factors and the selected demographic variables such as, age, educational status, occupation, type of family, religion, income of the family, area of residence, type of marriage, nutritional pattern, order of the child, sex of the baby, gestational weeks.

OPERATIONAL DEFINITION:

Low birth weight newborns

In the present study, it refers to the newborn whose birth weight is less than 2500 grams irrespective of the duration of Gestation.

Prevalence

In present study, it refers to a case of low birth weight newborn existing during a time of data collection from the month of June to July

Risk factor

It refers to those factors that contribute to low birth weight such as antenatal factors, obstetrical factors, nutritional factors, fetal factors

Post natal mothers

It refers to women who deliver newborn, whose birth weight is less than 2500 grams.

ASSUMPTION:

- Every child is unique and responds in a unique manner to uterine Environment.

- Poor maternal outcome may be due to negligence of prenatal Procedures and prenatal health behavior advice.

LIMITATION

- ❖ The data collection period is limited for six weeks
- ❖ Mothers of low birth weight newborns who are admitted in the selected hospitals at Madurai
- ❖ The sample size is limited to 60

PROJECTED OUTCOME

- ➢ The findings of the study determine the prevalence of low Birth weight and its risk factor

- ➢ The study findings help the nursing personnel and nursing students for further research regarding low birth weight.

- ➢ The findings of the study help the nurses to plan an antenatal health education programme regarding prevention of low birth weight.

CONCEPTUAL FRAME WORK

A conceptual frame is interrelated concept or abstractions that are assembled together in some rational scheme by virtue of their relevance to common theme **(polit and hungler, 1995)**

Rosenstock's (1974) and Becker's health belief model addresses the relationship between of person's belief and behaviours. It provides a way of understanding and predicting how clients will behave in relation to their health and how they will comply with health care therapies.

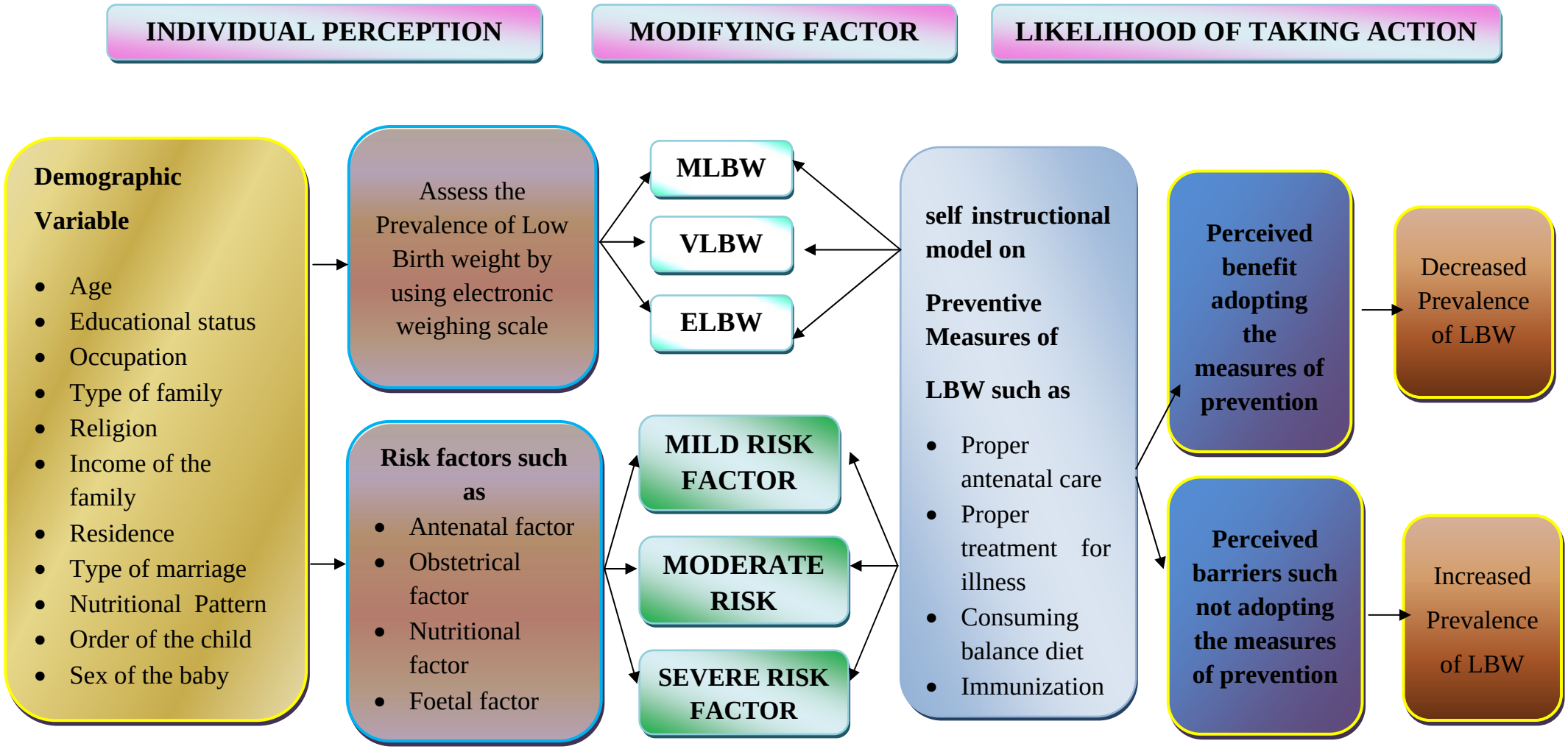
- The first component of this model involves the individual perception. In this study the individual is the mothers who are having low birth weight babies. The mothers perception regarding low birth weight and risk factors such as, antenatal factor, obstetrical factors, nutritional factor, fetal factor are though to be influence by certain demographic variables.

- The second components of the model consist of modifying factors. It includes assessing the prevalence and identifying the influencing factor of low birth weight and classifying as mild, moderate, severe and uses of action such as to prevent low birth weight.

- The third components of the model consist of likelihood of taking action. It includes perceived benefits of adopting preventive measures of low birth weight result decrease in the prevalence of LBW. In case of perceive barriers (or) not following the preventive measures results in increase in the prevalence of low birth weight.

FIGURE : 1 CONCEPTUAL FRAMEWORK BASED ON HEALTH BELIEF MODEL

(ROSEN STOCK 1974 AND BECKER)



MLBW – MODERATE LOW BIRTH WEIGHT, VLBW – VERY LOW BIRTH WEI4GHT, ELBW – EXTREME LOW BIRTH WEIGHT.

CHAPTER – II

REVIEW OF LITERATURE

The investigator carried out extensive review of literature to research topic to gain insight and collect maximum information for laying the foundation of the study.

Review of literature consists of two sections:

Section – I : Literature related to book sources

Section – II : Studies related to low birth weight

The available study was organized under the following headings.

- Association of LBW with risk factors
- Studies related to LBW

SECTION – I

In the world 20 million children are born with LBW every year. In India alone 7 to 10 million LBW babies are born annually. Any newborn weighing less than 2500 grams at birth irrespective of the period of gestation is called low birth weight newborn. It includes preterm and small for date newborn. Some of the causes such as, multiple pregnancy, mother's age and weight etc., influences the physiological changes in LBW newborn and need quality care to save the newborn life.

SECTION - II

ASSOCIATION OF LBW WITH VARIABLES

This section presents the various research and non-research studies related to association of LBW with factors such as, mothers age, gravida, parity, nutritional status, stress, illness during pregnancy etc.,

Tanzan J Health Research (2008) conducted a retrospective cross sectional study on low birth weight and associated factors in on Kilimanjaro Christian Medical Centre in Moshi. The study sample consists of 3464 pregnant women. They found that factors associated with low birth weight are hypertension, pre eclampsia and eclampsia, Premature rupture of membrane, placenta pravia, abruption of placenta, pregnant women with malnutrition.

Jackson, DJ (2007) conducted a case control study on risk factor for contributing LBW mainly smoking and maternal alcohol. The study was done at South Africa. The study sample consists of 200 infant with birth weight <2500 grams. They found that smoking and drinking contributing the occurrence of LBW in the target region.

K.K.Roy, et.al., (2006) conducted a study to evaluate the antenatal profile of the mother and the immediate neonatal outcome in very LBW and extreme LBW babies. The study was a retrospective analysis of 92 patterns of preterm labour that delivered babies weighing less than 1500 grams at 26 weeks to 34 weeks of gestation. Mothers subsequently delivered to very LBW babies (less than 1500 grams) and 36 extreme LBW babies (less than 1000 grams) including and pairs of twins and triplets pregnancies. Amongst the various high risk factors for preterm

labour, anemia during pregnancy (32.6%), bactericidal vaginosis (26%) gestational hypertension (18.4%) and pervious history of preterm labour (18.4%) were common association. The mortality rate was highest in 26 to 30 weeks gestation babies and in babies weighting less than 800 grams.

Dileep.V.Maralankal, et al, (2006) conducted a study to identify and qualify the risk factor for preterm and term low birth weight in hospital – based case – control study. Linked with population survey in Ahmadabad, India, the case control study of 673 term LBW, 644 preterm LBW cases and 1465 controls showed that low maternal weight, poor obstetric history, lack of antenatal care, clinical anemia and hypertension were significant independent risk factors for both term and preterm

G.M.Monawar Hosain, et al, (2005) conducted a study to examine the factors associated with LBW in rural Bangladesh. Enrolled in early first trimester, 350 women were followed for duration of pregnancy and data gathered on maternal factors such as, social, demographic, anthropometrics, biochemical measures and newborn birth weight with in 48 hours of birth. Almost, a quarter of babies (24%) were born with LBW and mean birth weight was 2961 grams. Bivariate analysis found association between LBW and mothers age, parity, weight, HB level, weight gain and health problems during pregnancy. Multi variance analysis revealed gestational age, hemoglobin level at the first visit and weight gain during pregnancy as significant predictors of LBW in this rural setting.

Chhahra P. Sharma (2004) conducted a study on the prevalence and determinants of LBW in an urban resettlement area of Delhi, India. A baseline survey was done to enroll all pregnancy women in the area. These women followed up every month to till outcome. The prevalence

of LBW was 39.1% occurrence of LBW was revealed to age, parity and weight and height are important determinants to produce LBW.

Valappil (2002) did a study in Hennepin country to examine the association between LBW and prenatal care, taking into account age and educational status of the mother. The study was conducted during the period of 1996-1998. There were 46428 births. Out of this 3099 were LBW and among this 6.75 was born to mothers who have not received Pre-natal care during the first trimester of pregnancy. The study revealed a significant positive association between LBW and mother's age and education.

Bhatia (2002) conducted an observational cross sectional study of epidemiological factors affecting low birth weight babies was conducted in a public hospital in Mumbai. 100 cases were studied by random sampling, over a period of 3 months and various factors related to LBW were studied. Data were obtained by interviewing the mothers and consulting hospital records. The incidence of LBW was 37%. The factors which had statistically significant association with LBW were higher birth order, multiple gestation, less maternal education, less percapita income, low socio- economic status, less duration of gestation, lesser inter pregnancy interval, acute or chronic diseases in mothers, tobacco addition, less numbers of antenatal visit, anemia during pregnancy, low pre delivery, lack of health education.

Gupton, et,al.,(2002) estimates that smoking cessation programmes for pregnant women could prevent several thousand low birth weight babies and save numerous lives each year.

Shah (2OO2) conducted a study on relation of maternal nutrition and low birth weight and gave the following results of the many factors influencing fetal nutrition, the maternal nutrition is the most vital. The pre-pregnancy maternal weight was the determinant factor affecting the fetal nutrition. Birth weight of infants delivered by women weighing 38 kg or less before pregnancy was significantly lower than those of newborns whose mother weighed above 41kg. The major factor contributing low birth weight infant is the chronic malnutrition of the mother.

Deshmukh, et.al., (2002) conducted a cohort study on low birth weight and associated maternal factors in an urban area. The study sample consists of 210 pregnant women. The low birth weight prevalence was 30.3% on multivariate analyzes. They found that maternal factors associated with low birth weight are anemia, low socio-economic status, short birth interval, tobacco exposure, less height of the mother, maternal age, body mass index and primi parity.

Baxi 2000 analyzed 700 babies out of which 100 babies were of low birth weight said that 33% of the mothers giving birth to low birth infants were below 20 years of age, 45% were primipara with less weight and height.

Hirve, et.al., (2000) conducted a prospective control study on determinants of low birth weight in Pune district. Pregnant women in 45 villages were selected. The risk factors identified through the study are low socio-economic status, maternal age less than 20 years, primiparrity, last pregnancy interval less than 6 months, non- pregnant weight less than 40 kg, height below 145 cm, Hemoglobin level less than 9 grams/dl and III trimester bleeding.

Murthy (2001) in his article on prevention of LBW baby reported about the identification of risk factors (age, parity, birth intervals, poor previous obstetric history) hence avoidance of teenage pregnancy, extra supplementary food during pregnancy to mothers, monitoring antenatal complications, right knowledge through proper health education about reproductive health is essential to prevent low birth weight babies.

Nelson (2000) revealed that maternal age older than 30 years, underweight pregnancy and mothers who smoke are risk factors of low birth weight.

Radhakrishnan, et.al., (2000) conducted a community based cross sectional survey on socio-economic demographic factors associated with low birth weight at Kerala. He included mothers of 280 infants; socio-economic status was the principle determinant of low birth weight.

Mondal ,B (2000) conducted a study on risk factors for low birth weight in Nepal infants. Detailed information of 448 consecutive Nepali births which occurred between Jan 1, 1958 and December 31, 1994 was collected from the birth registers of a hospital. Meghalaya, the incidence of low birth weight was 21.53%. The result of univariable analysis revealed the sex. Maternal age, parity, gestation period, Economic condition and maternal education were significantly related to the incidence of low birth weight.

Lucita (2000) conducted a comparative study on maternal stress and maternal and fetal outcome in SAT hospital in Trivandrum. She selected 120 women convenient sampling technique. Important maternal risk factors included in the study were marital status, age, parity, history of Abortion, loss of babies, pregnancy after treatment of infertility, fetal

growth. Financial difficulties, bad habits of husband, family atmosphere etc., It was seen in this study that there is a relation between maternal stress and the outcome of fetus

Deshmykh (2000) conducted a cohort study on low birth weight and associated maternal factors in an urban area" with a sample of 210 pregnant mothers which revealed that anemia, low socio-economic status, short statue, short birth interval, tobacco exposure, low maternal age, low body mass index and primi parity are significant risk factors for low birth weight.

OP GHAI (2000) in his literature maternal factors in the epidemiology of low birth weight reported the incidence of low birth infants increased in grand multi para particularly beyond fourth parity and LBW incidence was higher in mothers below 20 years of age.

STUDIES RELATED TO LBW BABIES

Ruth t. k stein, et.al., (2006) conducted a study to examine whether risk for health problems than normal birth weight children in a nationally representative sample of the children. Data analyzed from the sample child file of the National health interview survey. The study revealed that very LBW children are vulnerable to a wide range health, learning and behavior problems, compared with normal children.

Tome N.K.Raju, et.al., (2006) conducted a study on optimizing care and outcome for late preterm infants. The study revealed that late preterm infants have higher frequencies of respiratory distress, high temperature, instability, hypoglycemia, kernicterus and apnea, seizures and feeding problems as well as higher incidence of hospitalization. They

recommended early appointment, continued long-term follow up needed for these children..

Yonygmei, et.al., (2005) conducted a study to compare growth and neuro development of LBW and normal birth weight infants born and raised in china. Perspective cohort study and 203 LBW and 71 control infants born at two shanghai hospital did not differ for date of birth, gender, parental occupation, parental weight and age. The study reveals that SGA, Preterm were lower than control subjects in weight and head circumference in physical growth, cognitive capacity and school achievement.

Barbara Warner, et.al., (2004) conducted a study on the effect of birth hospital type on the outcome of very LBW infants. A population based cohort study was conducted all live births of 500-1499 grams at the 19 hospitals in the greater Cincinnati region from September 1, 1995 through December 31, 1997 (N-848). They have taken infants who are born at hospitals with sub specialty prenatal and neonatal care compared with other available birth sites. The study revealed that, the odds of death on majority morbidity for very LBW infants who were born at non-sub specialty prenatal centers.

WHO (2004) reported that the neonates are soft, tender and they require physical as well as psychological support in order to get adjust to the external environment. This adjustment requires the fullest development process in new born baby where as in case of low birth weight this is lacking. Low birth weight refers to all new born whose weight is less than 2500 grams irrespective of the duration of gestation.

Lewis vernacchio, et.al., (2003) conducted a study to describe sleep positions among of LBW infants. Design used prospective cohort

study in Massachusetts and ohio and have taken mothers of 907 LBW infants. Study revealed that, the very LBW infants, who were at very high risk for sudden infant death syndrome, were more likely to sleep prone than larger LBW infants.

Arvind, et.al, (2003) reported that the study was designed to ascertain the maternal and neonatal profile and immediate outcome of extremely low birth weight (ELBW) babies at a level III, neonatal intensive care unit (NICU) case records of ELBW inborn babies delivered between August 2000 and August 2001 were analyzed by using a pre-set-Performa. A total of 52 ELBW babies were admitted in NICU in the relevant period, out of which 30 (51%) survived.

Kapoor, et.al, (2001) reported that low birth weight is one of the important causes for the high infant Mortality Rate (IMR) in developing countries. In India the MMR was 80 per live births and Neonatal Mortality rate (NNMR) was 51 per 1000 live births. LBW babies have been reported to lack behind their heavier counter parts in development for the rest of their lives. Long term sequel of LBW in terms of higher burden of non- communicable disease has also been reported.

CHAPTER – III

RESEARCH METHODOLOGY

The research methodology indicates the general pattern of organizing the procedure of gathering valid and reliable data for an investigation. This chapter provides a brief description of the method adapted by the investigator in the study.

It includes research design, setting, population, sample size, sample technique and criteria for sample selection. It further deals with development of tool, validity, reliability, pilot study, procedure for data collection. Plan for data analysis and protection of human subjects.

RESEARCH APPROACH

A quantitative approach was used for this study.

RESEARCH DESIGN

A descriptive research design was used to determine the prevalence of low birth weight and its risk factors among postnatal mother

SETTING OF THE STUDY

This study was conducted in the postnatal ward of Government Rajaji hospital at Madurai, situated at 50 Km away from Matha College of Nursing, Manamadurai. The hospital is reputed for multi speciality with bed strength of 2850, which consists of various departments like cardiology, Cardio-thoracic surgery, Medical, Nephrology, Surgery, Pediatrics, Obstetrics and Gynecology etc. The postnatal ward has the bed strength of 90. About 45 mothers were admitted in the ward for delivery per day. The total number of deliveries conducted in this hospital per month is nearly 1300 and per day is nearly 40.

POPULATION

The target population of the study was the mothers of Low birth weight newborns

SAMPLES AND SAMPLE SIZE

A sample consists of 60 postnatal mothers and their LBW newborns who fulfill the inclusion criteria.

SAMPLING TECHNIQUE

Non probability, purposive sampling was used to select the subject.

CRITERIA FOR SAMPLE SELECTION

Inclusion criteria

Mothers who met the following criteria:

- Mothers of low birth weight newborns
- Mothers available during the study period
- Mothers who are willing to participate in the study
- Term babies with intrauterine growth retardation

Exclusion Criteria

- Critically ill child
- Critically ill mother
- Mother affected with any psychological problem.

SELECTION OF THE TOOL

The planned interview schedules were selected for the study.

DEVELOPMENT OF THE TOOL

In the process of developing the tool, the investigator reviews the research literature and discuss with subject experts in the nursing field. This helped in the selection of the content for the development of tool. The content validity was obtained from expert Professors of college of nursing and the professors of the Pediatric department and reliability of tool was checked. Six mothers who had Low birth weight newborn were selected by purposive sampling method. The interview schedule was conducted by using questionnaire. The results were analyzed based on the scores obtained by the mothers. Based on the result of pilot study, changes were made in questionnaire.

DESCRIPTION OF THE TOOL

Tools were developed by the investigator based on the review of literature and experts opinion.

It consists of 3 parts.

Part 1: consist of 2 sections.

Section: A It deals with the demographic variables of the mothers such as, age of the mother, education status, occupation, type of family, Religion, Income of the family, area of residence, type of marriage, nutritional pattern.

Section: B it deals with the demographic variables of the child.

Order of children in the family, sex of the baby, gestational weeks,

Part: II

Electronic Weighing scale was used to detect the weight of the baby.

Part: III

Consists of questions related to risk factors of low birth weights which includes.

Section I - Obstetrical factors

Section II - Antenatal factors

Section III - Nutritional factors

Section IV - Fetal factors

SCORING PROCEDURE

Tool II

Classification of Low birth weight

Categories	weight
Moderate Low birth weight	1500 – 2500 grams
Very low birth weight	1000 – 1499 grams
Extreme low birth weight	Less than 1000 grams

Tool III

Consist of four sections such as, obstetrical factors, antenatal factors, nutritional factors, fetal factors. Each section carries different score which is stated below in detailed. Yes/No type pattern of questions were prepared by the investigator on the risk factors of low birth weight. Each questions carries the maximum score of 1 and minimum score 0.

Section: I Obstetrical factors:

Total Number of questions	-	6
Score key		
Yes -1		
No - 0		
Total number of score	-	6
Mild	-	0 to 2
Moderate	-	3 – 4
Severe	-	more than 4

Section – II: Antenatal Factors

Total number of question	-	20
Total number of score	-	20
Mild	-	0 to10
Moderate	-	11 to 15
Severe	-	more than 15

Section III: Nutritional factors

Total number of question	-	5
Total number of score	-	5
Mild	-	0 to 2
Moderate	-	3 to 4
Severe	-	more than 4

Section IV: Fetal Factors

Total number of question	-	4
Total number of score	-	4
Mild	-	Less than 1
Moderate	-	1 to 2
Severe	-	more than 2

TESTING OF THE TOOL

Validity

5 experts in the field of Pediatric nursing, Psychiatry nursing, Gynecology in nursing and the Pediatrician established content validity of the tool. The tool was translated into Tamil and again translated into English to validate the language.

Reliability

Test and retest method was used to find out the reliability of the tool r = 0.8. Co-efficient of correlation was found. Which indicate the degree of reliability.

PILOT STUDY

The pilot study was conducted in the Government Rajaji hospital in the month of June 2009 in Madurai to assess the feasibility of the study and also to determine any flaws in the design used. It also helped to determine the plan of statistical analysis. To conduct the study the prior administrative permission was obtained. The 6 mother was selected by using purposive sampling technique. Test was done using planned interview schedule. The pilot study did not show any major problems in the design of the study. The subjects included in the pilot study were excluded from the main study.

DATA COLLECTION PROCEDURE

The data collection procedure was proceeded for 6 weeks as per plan. First officials were met and got oral permission to do the study. And introduced myself to the Newborn unit Chief and the staff, and explained about the study requirements. Good rapport built up with all the workers. The list of low birth weight newborns was first collected from the admission register. Then interviewed the mothers with questionnaire prepared, side by side their case sheets were studied. Study was explained to them and obtained full data required to rule out the risk factors contributing to the LBW. Everyday LBW Newborn are admitted in newborn unit and their mothers were met and subjects were selected by purposive sampling technique and daily data collection was done from 8 am to 4.30 pm for the period of 6 weeks. On the day of discharge, the researcher gave an instruction module on prevention of low birth weight and care of LBW to the mothers. Doctors, staff nurse, other workers and the parents cooperated well.

DATA ANALYSIS

Data were collected, tabulated and analyzed by using statistical methods with numbers, percentages

S. No	Data analysis	Methods	Remarks
1	Descriptive Statistics	Frequency Percentage	Used for the distribution of sample characteristics
2	Inferential statistics	Kari Pearson's	Used to find out the relationship between the LBW and risk factors.
		Chi – square	Used to find out the association between LBW and demographic variables. Used to find out the association between risk factors and Demographic variables.

PROTECTION OF HUMAN SUBJECTS

The study was done after the approval of the dissertation committee. Permission was obtained from the Departmental Heads of both Pediatrics and Nursing to conduct the study. Verbal consent was obtained from the mothers of the subjects and the data collected were kept confidential.

CHAPTER – IV

DATA ANALYSIS AND INTERPRETATION

This Chapter deals with analysis and interpretation of the data collected from 60 mothers of low birth weight newborns from Government Rajaji hospital in Madurai.

Arbela and Levine (1979) have stated that the interpretation of tabulated data can bring to light the real meaning of the findings of the study. The data collected through planned interview schedule were analyzed by using descriptive and inferential statistics.

OBJECTIVES:

- To find out the prevalence of low birth weight babies in the selected hospital in Madurai.
- To identify the level of risk factors for low birth weight among postnatal mothers in the selected hospital in Madurai.
- To find out the relationship between the low birth weight and its risk factor among postnatal mothers in the selected hospital in Madurai.
- To find out the association between low birth weight and the selected demographic variables such as, age, educational status, occupation, type of family, religion, income of the family, area of residence, type of marriage, nutritional pattern, order of the child, sex of the baby, gestational weeks.
- To find out the association between risk factors and the selected demographic variables such as, age, educational status, occupation, type of family, religion, income of the family, area of residence, type of marriage, nutritional pattern, order of the child, sex of the baby, gestational weeks.

PRESENTATION OF DATA

The data was organized, analyzed and presented in the following sections.

Section – I

Table I: Frequency distribution and percentage of samples according to the demographic variables of the mother.

Table II: Frequency distribution and percentage of samples according to the demographic variables of the child.

Section – II

Table III: Frequency distribution and percentage of prevalence of low birth weight.

Section – III

Table – IV: Frequency distribution and percentage of samples according to the level of risk factors for low birth.

Section – IV

Table – V: Relationship between the low birth weight and risk factors.

Section – V

Table – VI_a: Association between the low birth weight and demographic variables of the mothers.

Table – VI_b: Association between the low birth weight and demographic variables of the child

Section – VI

Table – VII_a: Association between obstetrical factors and demographic variables of the mothers and child.

Table – VII_b: Association between antenatal factors and demographic variables of the mothers and child.

Table – VII_C: Association between nutritional factors and demographic variables of the mothers and child.

Table – VII_d: Association between fetal factors and demographic variables of the mothers and child

SECTION – I

Table – I: Frequency distribution and percentage of samples according to the demographic variables of the mothers.

N = 60

S. No	Demographic Variables	Frequency	Percentage (%)
1	**Age**		
	Below 21 Years	9	15%
	21 to 30 years	41	68%
	above 30 years	10	17%
2	**Educational Status**		
	Illiterate	10	17%
	Primary School	18	30%
	High School	23	38%
	Higher Secondary	4	7%
	Graduate	5	8%
3	**Occupation**		
	Government	5	8%
	Non Government	11	18%
	Daily wages	26	43%
	House wife	13	22%
	Seasonal workers	5	8%
4	**Type of family**		
	Nuclear family	33	55%
	Joint family	27	45%
5	**Religion**		
	Hindu	33	55%
	Christian	15	25%
	Muslim	12	20%

6	**Income of the family**		
	Less than 2000	11	18%
	Rs.2001 – 5000	25	42%
	More than 5000	24	40%
7	**Area of residence**		
	Rural	32	53%
	Urban	28	47%
8	**Type of Marriage**		
	Consanguineous	27	45%
	Non Consanguineous	33	55%
9	**Nutritional pattern**		
	Vegetarian	11	18%
	Non vegetarian	49	82%

Table– I shows that regarding age of mothers 9 (15%) were below 21 years, 41(68%) were 21-30 years, 10 (17%) were above 30 years.

Regarding Educational Status 10 (17%) were illiterates, 18 (30%) were from Primary 23 (38%) were from high school. 4 (7%) were from higher secondary, 5 (8%) were graduates.

Regarding occupation of mothers 5(8%) were government officers 11(18%) were non government officers, 26 (43%) were daily wages, 13 (22%) were house wife's and 5(8%) were seasonal workers.

Regarding family type 33 (55%) were nuclear family, 27 (45%) were joint family.

Regarding religion 33(55%), were Hindus, 15(25%) were Christians and 12 (20%) were Muslims.

Regarding family income 11(18%) were below 2000, 25 (42%) were 2001-5000 and 24 (40%) were above 5000.

Regarding area of residence 32(53%) were rural and 28(47%) were urban.

Regarding marriage type 27(45%) were consanguineous 33(55%) were non consanguineous.

Regarding nutritional pattern 11(18%) were vegetarians and 49(82%) were non vegetarians

Figure 2 : Percentage distribution of samples according to their age

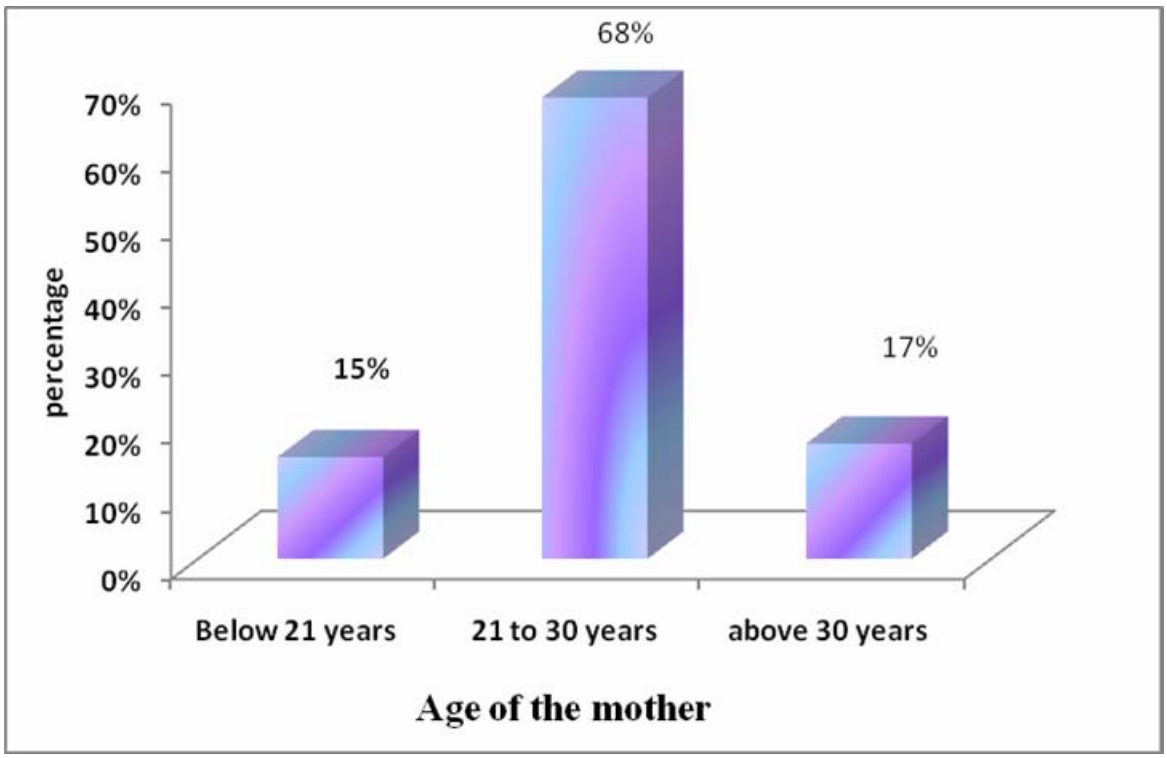


Figure 3: Percentage distribution of samples according to their educational status

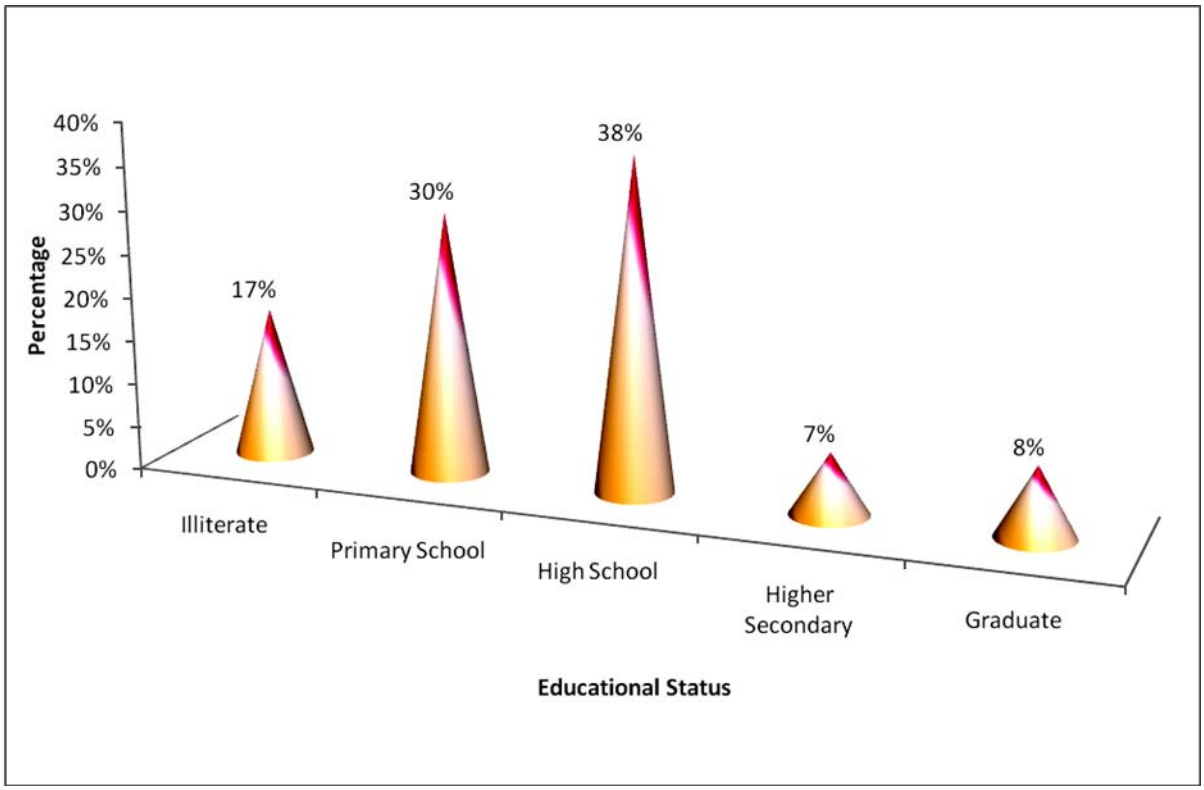


Figure 4: Percentage distribution of samples according to their occupation

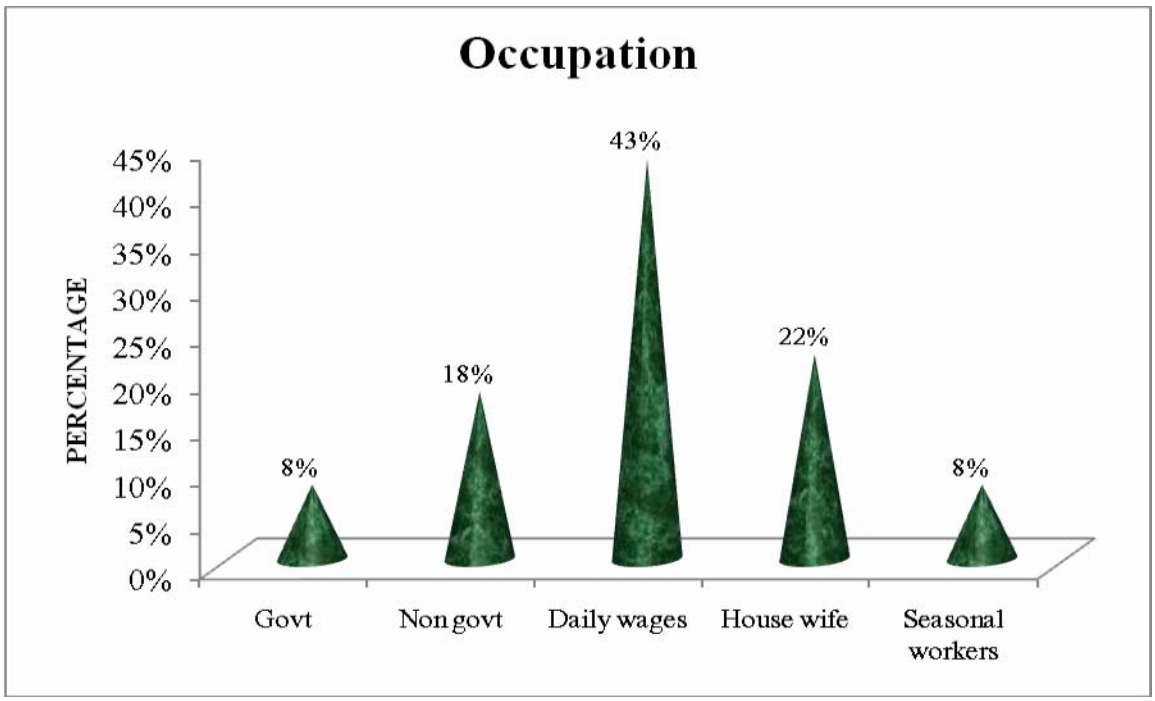


Figure 5: Percentage distribution of samples according to their type of family

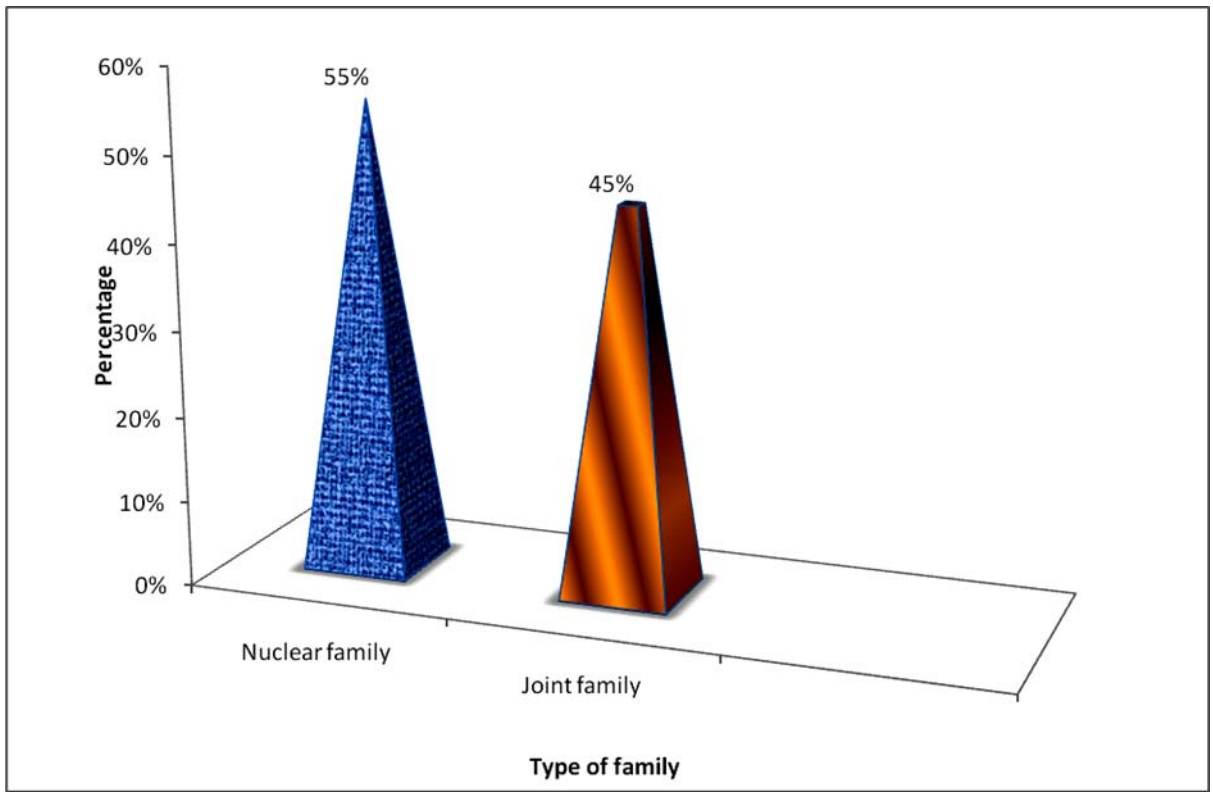


Figure 6 : Percentage distribution of samples according to their religion

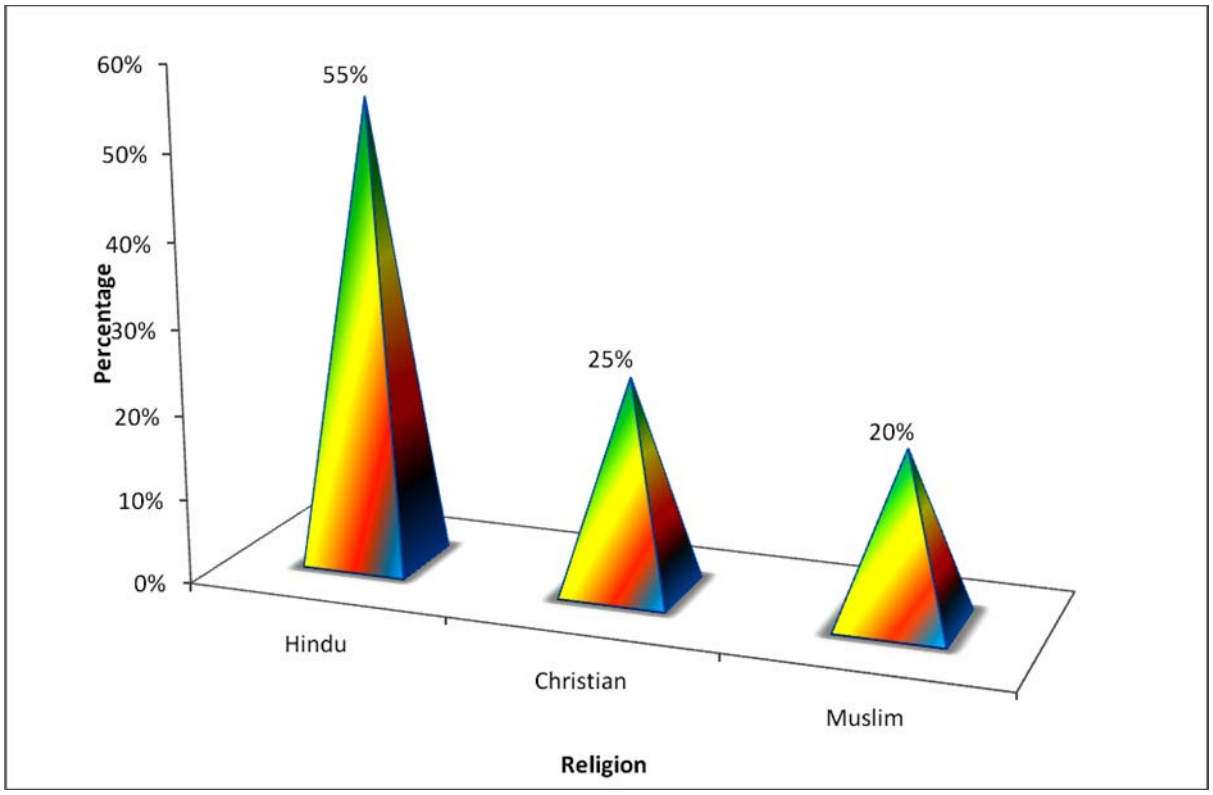


Figure 7: Percentage distribution of samples according to their income of the family

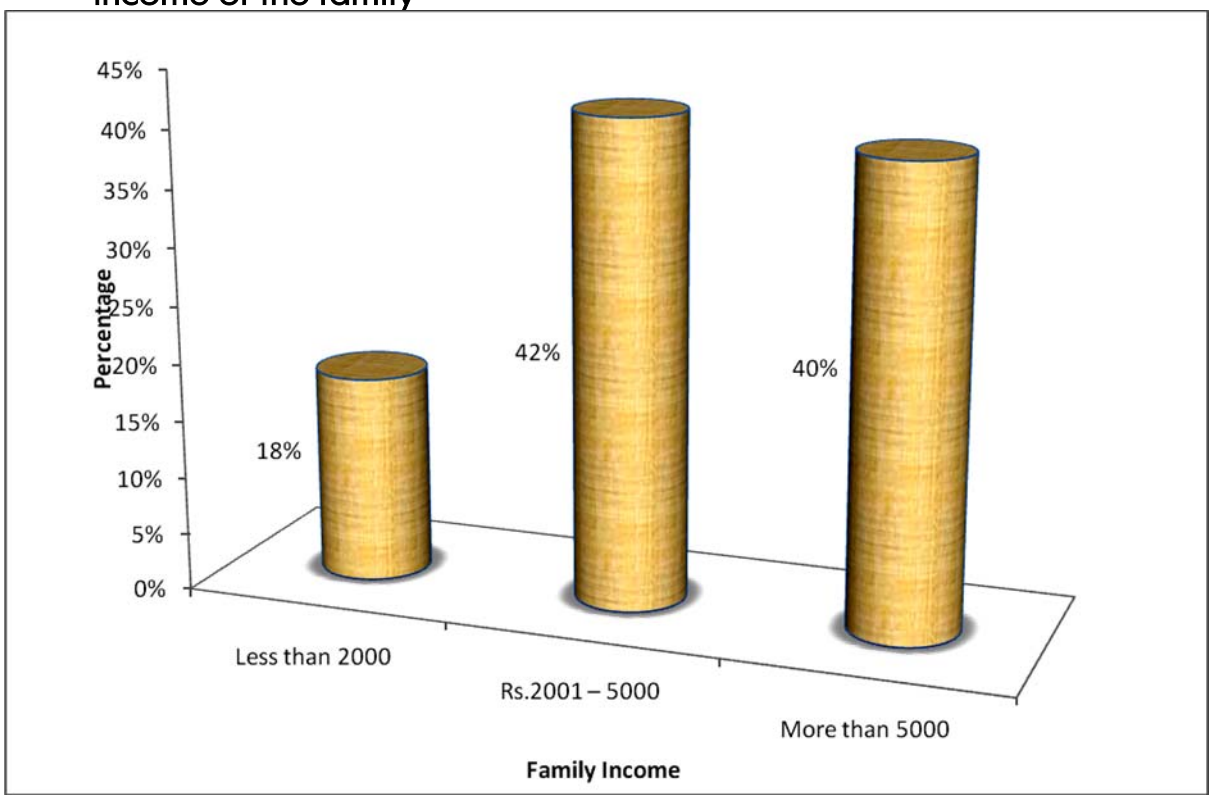


Figure 8: Percentage distribution of samples according to their area of residence

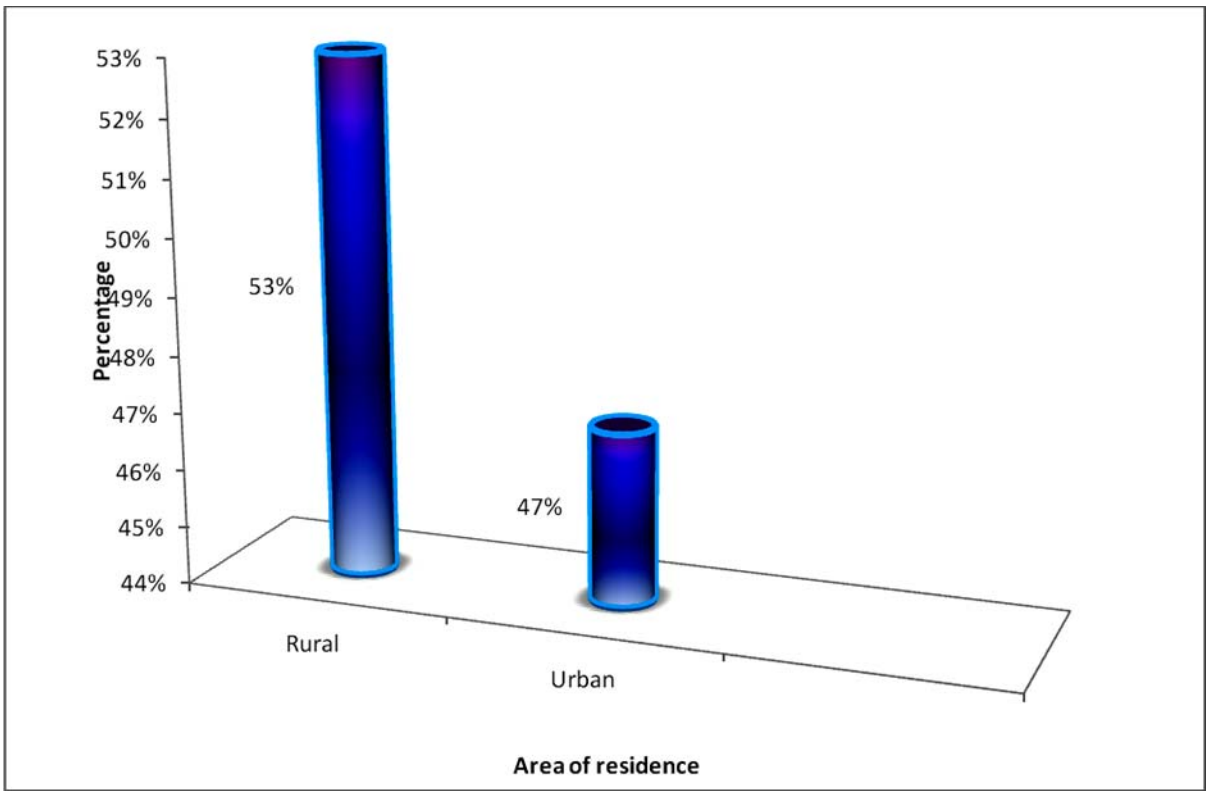


Figure 9: Percentage distribution of samples according to their type of marriage

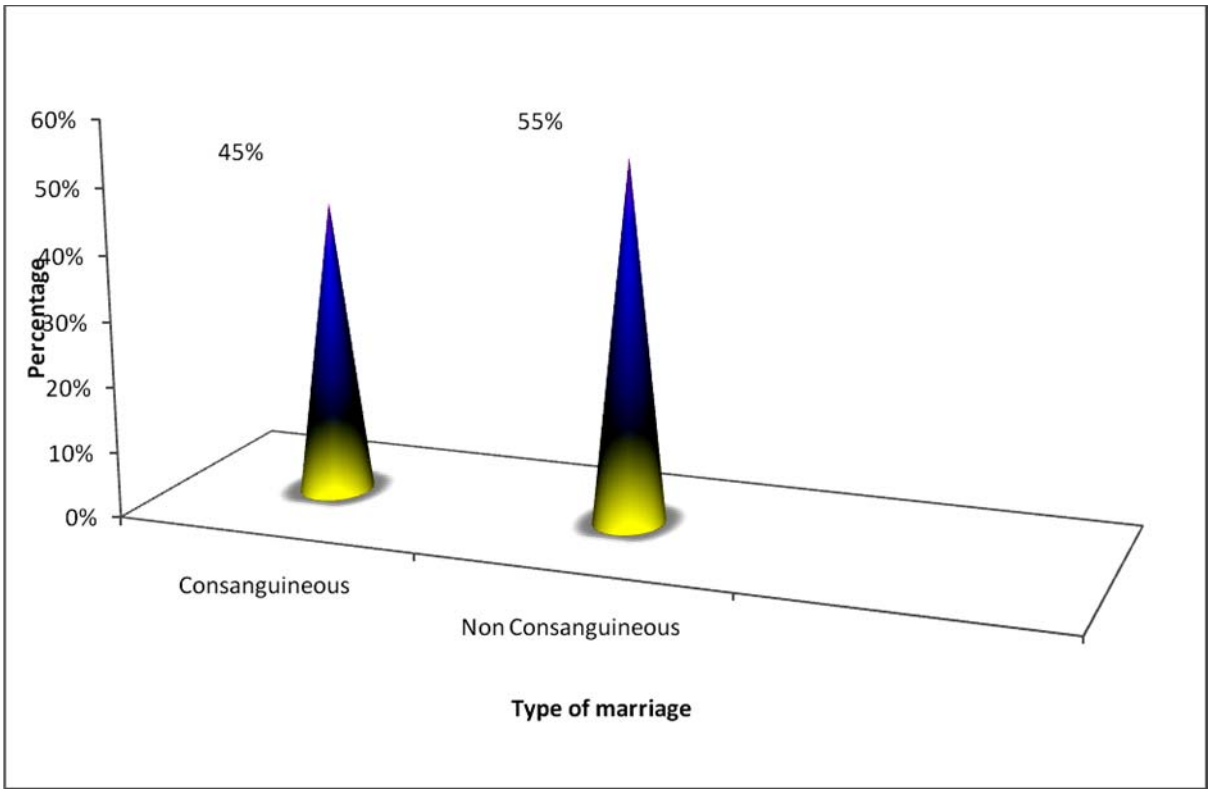


Figure 10: Percentage distribution of samples according to their Nutritional patterns

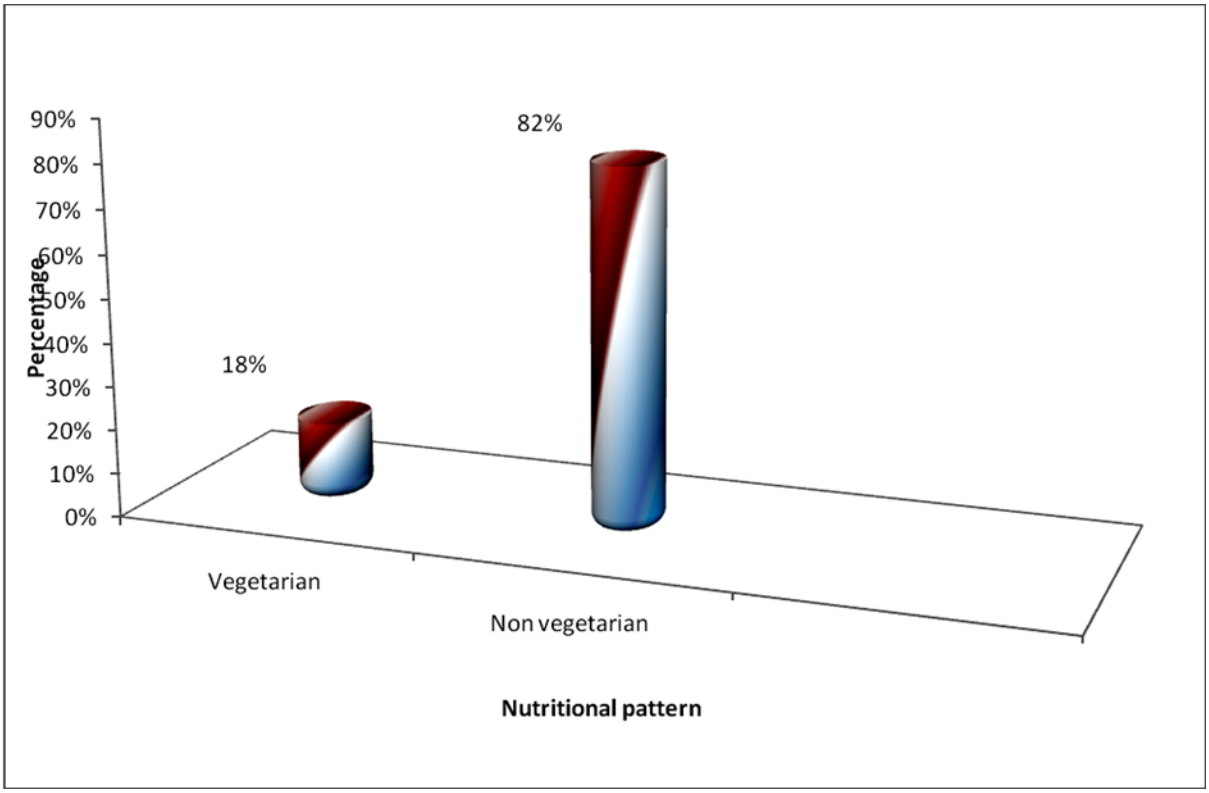


Table – II Frequency distribution and percentage of sample to the demographic variables of the child.

(N=60)

S. No	Demographic Variables	Frequency	Percentage (%)
1	**Order of the child**		
	1	9	15%
	2	28	47%
	3 and above	23	38%
2	**Sex of the Baby**		
	Male	36	60%
	Female	24	40%
3	**Gestational weeks**		
	Less than 37 weeks	22	37%
	More than 37 weeks	38	63%

Regarding order of the children 9 (15%) were first born, 28 (47%) were second born and 23 (38%) were third and above born.

Regarding sex 36 (60%) were male, 24 (40%) female, regarding Gestational weeks 22 (37%) were below 37 weeks, 38 (63%) were above 37 weeks.

Figure 11: Percentage distribution of samples according to their order of the child

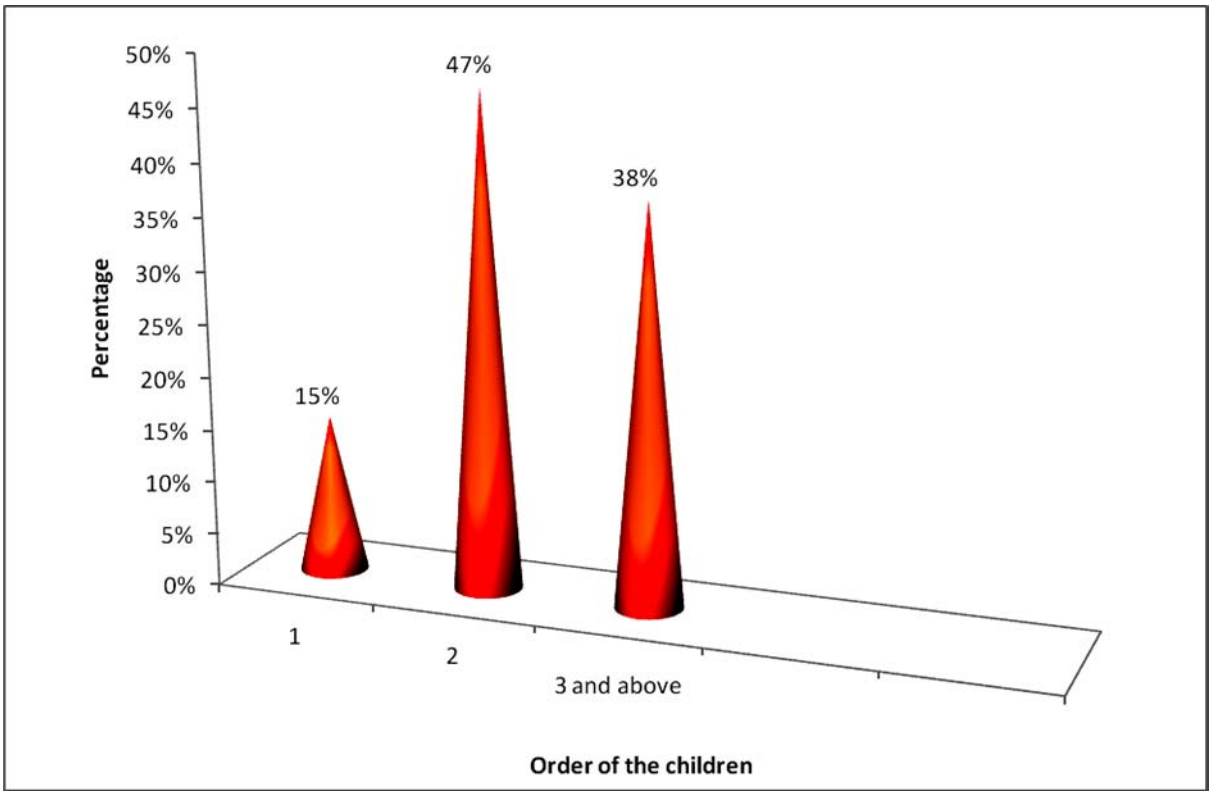


Figure 12: Percentage distribution of samples according to their Sex of the baby

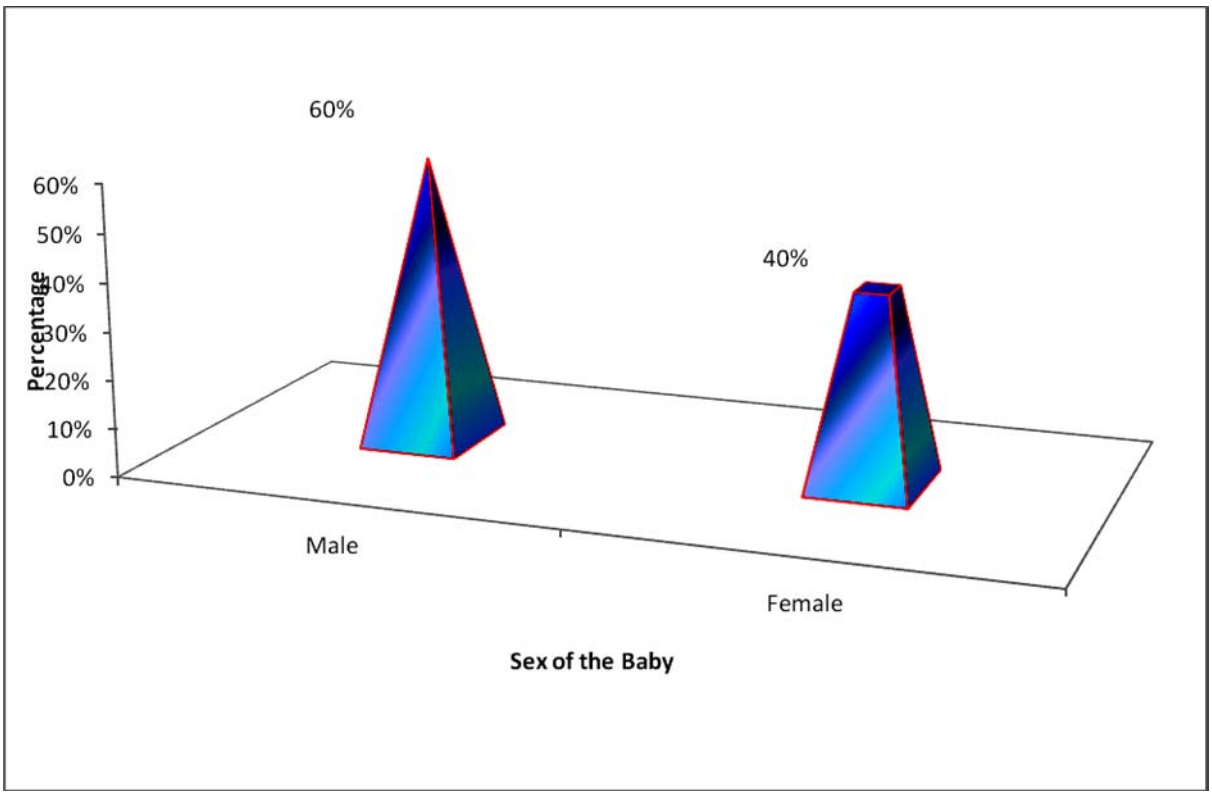
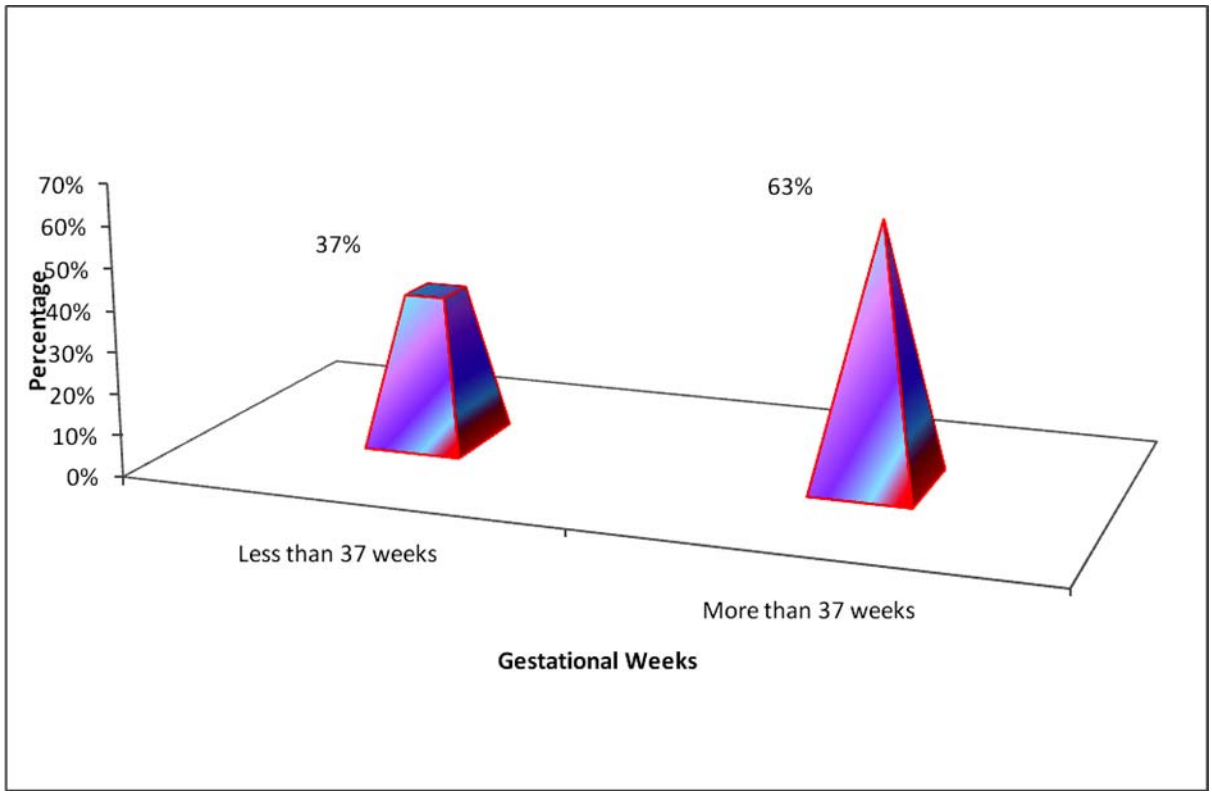


Figure 13: Percentage distribution of samples according to their Gestational weeks



SECTION – II

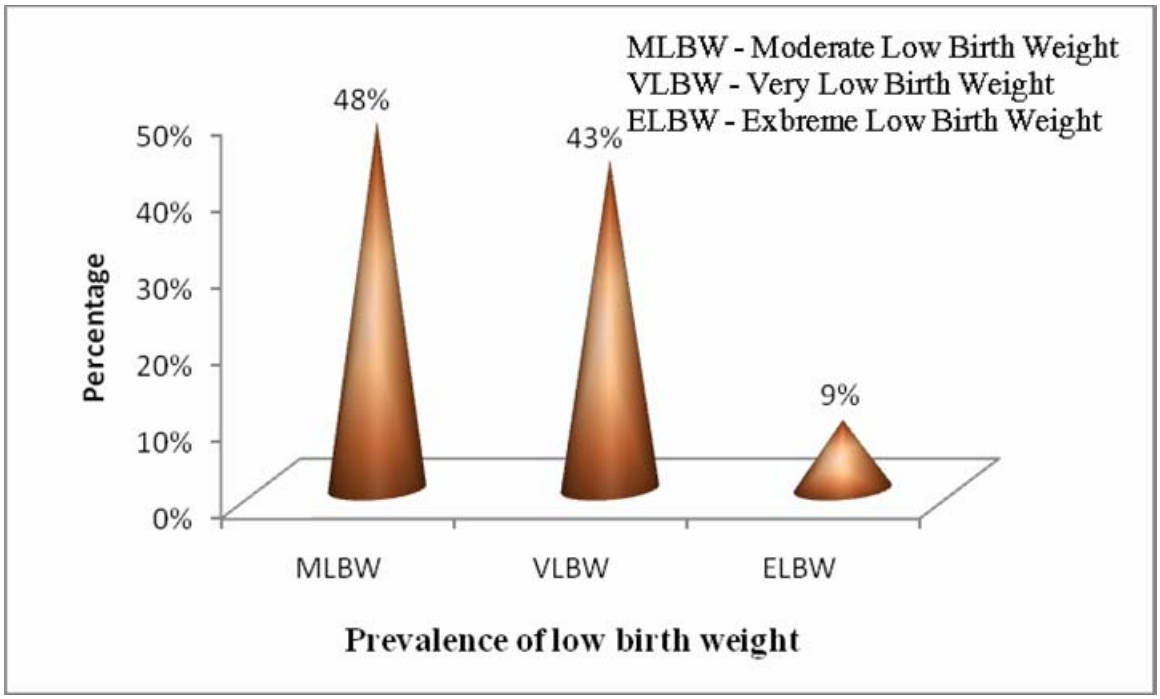
Table – III Frequency distribution and Percentage of prevalence of low birth weight.

N=210

Sl. NO	Prevalence	Frequency	Percentage (%)
1	MLBW	101	48%
2	VLBW	91	43%
3	ELBW	18	9%

Table III shows that prevalence of low birth weight in that 101 (48%) were moderate low birth weight, 91(43%) were very low birth weight and 18 (9%) were extreme low birth weight.

Figure 14: Percentage distribution of Prevalence of Low Birth weight



SECTION – III

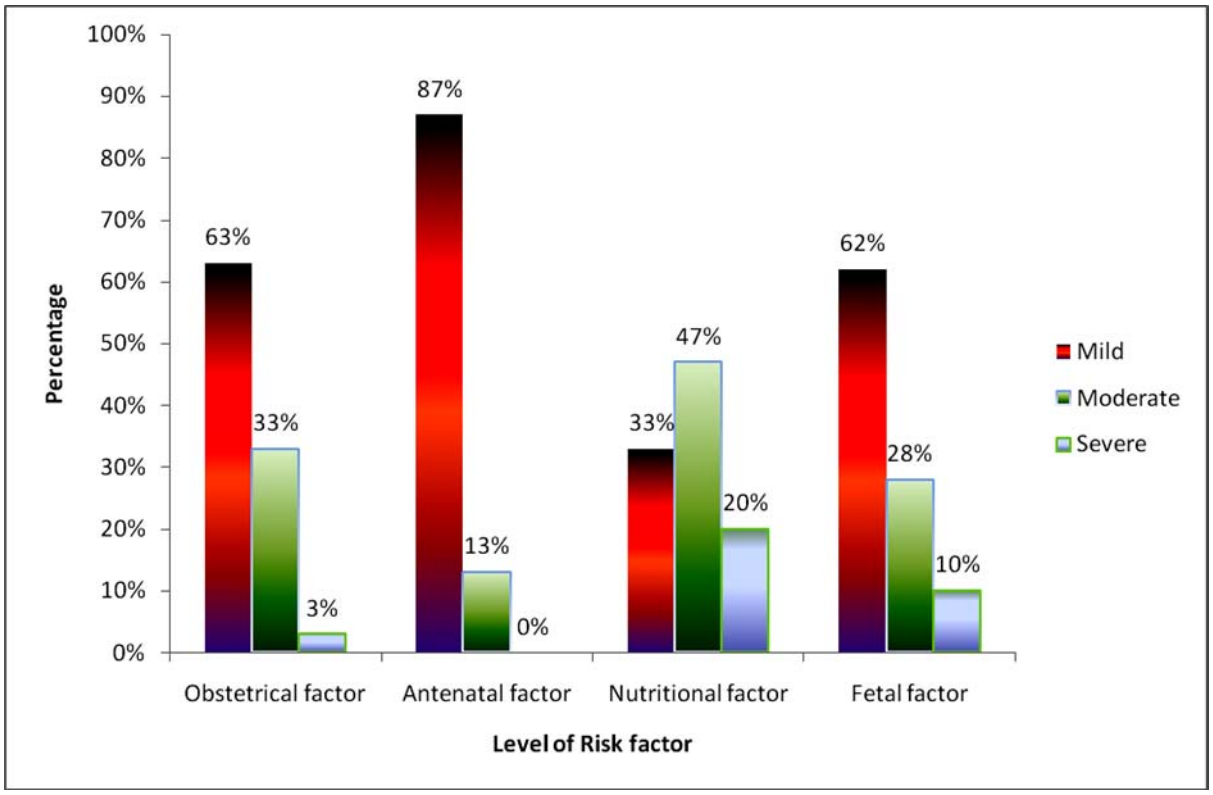
Table IV: Frequency distribution and percentage of samples according to the level of risk factors for low birth weight.

N=60

Sl. No	Risk factors	Mild influencing		Moderate influencing		Severe Influencing	
		F	P (%)	F	P (%)	F	P (%)
1	Obstetrical factors	38	63%	20	33%	2	3%
2	Antenatal factors	52	87%	8	13%	-	-
3	Nutritional factors	20	33%	28	47%	12	20%
4	Fetal factors	37	62%	17	28%	6	10%

Table IV shows the risk factors of low birth weight. In that obstetrical factors 38 (63%) were mild, 20 (33%) were moderate and 2 (3%) were severe risk factors for LBW. Regarding antenatal factors 52 (87%) were mild influencing, 8 (13%) were moderate influencing risk factor and no severe risk factor. Regarding nutritional factors 20 (33%) were mild, 28 (47%) were moderate and 12 (20%) were severe risk factor for LBW. Regarding fetal factors 37 (62%) were mild influencing, 17 (28%) were moderate risk factor and 6 (10%) were severe risk factors for LBW.

Figure 15: Percentage distribution of samples according to their level of risk factors



SECTION – IV

Table V:

Relationship between the LBW and risk factors of Low Birth weight.

N=60

Sl. No	Variable	Co – efficient	Result
1	Low birth weight	r = 0.369 **	Positive Correlation
2	Risk factors		

**: significant at 0.01 levels

To find out the relationship between LBW and risk factors co-efficient correlation was used. The computed ‘r’ value is 0.39. The positive correlation was found between LBW and risk factors. Hence, It was interpreted that child who had LBW was influenced by certain risk factors.

SECTION – V

Table -VI_a: Association between low birth weight and demographic variables of the mothers

N=60

Sl. No	Demographic Variables	MLBW	VLBW	ELBW	Chi - Square Test
1	**Age**				
	Below 21 Years	2	6	1	* 10.925
	21 to 30 years	23	17	1	
	above 30 years	4	3	3	
2	**Educational Status**				
	Illiterate	2	4	4	
	Primary School	1	17	-	** 49.836
	High School	18	5	-	
	Higher Secondary	4	-	-	
	Graduate	4	-	1	
3	**Occupation**				
	Government	2	2	1	
	Non Government	5	5	1	NS 7.749
	Daily wages	9	14	3	
	House wife	9	4	-	
	Seasonal workers	4	1	-	
4	**Type of family**				
	Nuclear family	16	14	3	NS 0.065
	Joint family	13	12	2	
5	**Religion**				NS 4.254
	Hindu	18	11	4	
	Christian	6	9	-	

	Muslim	5	6	1	
6	**Income of the family**				** 43.177
	Less than 2000	3	3	5	
	Rs.2001 – 5000	6	19	-	
	More than 5000	20	4	-	
7	**Area of residence**				NS 0.122
	Rural	15	14	3	
	Urban	14	12	2	
8	**Type of Marriage**				NS 0.065
	Consanguineous	13	12	2	
	Non Consanguineous	16	14	3	
9	**Nutritional pattern**				** 24.638
	Vegetarian	4	2	5	
	Non vegetarian	25	24	-	

**: Significant at 0.01 level

*: Significant at 0.05 level

NS: No Significant

The data presented in the Table VIa shows that the chi - square test was carried out to find out the association between the low birth weight and demographic variables.

The results shows that there was no significant association between the LBW and demographic variables of mothers such as occupation, type of family, religion, area of residence, type of marriage. There was a significant association between the low birth weight and age of the mother, educational Status, income of the family and nutritional pattern.

Table VI_b**:** Association between LBW and demographic variables of the child

N=60

Sl. No	Demographic Variables	MLBW	VLBW	ELBW	Chi - Square Test
1	**Order of the child**				** 42.670
	1	2	2	5	
	2	9	19	-	
	3	18	5	-	
2	**Sex of the baby**				Ns 0.596
	Male	16	17	3	
	Female	13	9	2	
3	**Gestational weeks**				* 12.180
	Less than 37 weeks	6	11	5	
	More than 37 weeks	23	15	-	

**: Significant at 0.01 level

*: Significant at 0.05 level

NS: No Significant

The data presented in the Table VI_b shows that the chi – square test was carried out to find out the association between the low birth weight and demographic variable of the child.

The results show that there was no significant association between low birth weight and sex of the baby. There was a significant association between low birth weight and order of the child and gestational weeks

SECTION – VI

Table VII_a Association between obstetrical factors and demographic variables of the mothers and child

N=60

Sl. No	Demographic Variables	Obstetrical Factors			Chi - Square Test
		Mild	Moderate	Severe	
1	**Age**				NS 6.214
	less than 21 years	8	1	-	
	21 to 30 years	26	13	2	
	above 30 years	4	6	-	
2	**Educational Status**				NS 6.751
	Illiterate	5	5	-	
	Primary School	12	4	2	
	High School	15	8	-	
	Higher Secondary	3	1	-	
	Graduate	3	2	-	
3	**Occupation**				NS 7.670
	Government	5	-	-	
	Non Government	7	4	-	
	Daily wages	18	7	1	
	House wife	5	7	1	
	Seasonal workers	3	2	-	
4	**Type of family**				NS 2.222
	Nuclear family	19	12	2	
	Joint family	19	8	-	
5	**Religion**				NS

	Hindu	22	11	0	5.274
	Christian	7	7	1	
	Muslim	9	2	1	
6	**Income of the family**				
	Less than 2000	6	5	-	NS 3.814
	Rs.2001 – 5000	15	8	2	
	More than 5000	17	7	-	
7	**Area of residence**				
	Rural	22	8	2	NS 3.496
	Urban	16	12	-	
8	**Type of Marriage**				
	Consanguineous	23	4	-	** 10.388
	Non onsanguineous	15	16	2	
9	**Nutritional pattern**				
	Vegetarian	5	5	1	NS 2.613
	Non vegetarian	33	15	1	
10	**Order of the child**				
	First	3	5	1	NS 5.856
	Second	19	9	-	
	Third and Above	16	6	1	
11	**Sex of the baby**				
	Male	24	10	2	NS 2.325
	Female	14	10	0	
12	**Gestational weeks**				
	Less than 37 weeks	13	9	0	NS 1.855
	More than 37 weeks	25	11	2	

** - Significant at 0.01 level
*- Significant at 0.05 level
NS – No Significant

The data presented in the Table VII_a shows that the chi - square test was carried out to find out the association between the obstetrical factors and demographic variables of the mothers and child.

The results shows that there was no significant association between the Obstetrical factors and demographic variables such as, age, educational status, occupation, type of family, religion, area of residence, income of the family, type of marriage, nutritional pattern, order of the child, sex of the baby, gestation weeks. There was a significant association between the obstetrical factors and type of marriage.

Table VII$_b$ Association between Antenatal factors and demographic variables of the mothers and child

N=60

Sl. No	Demographic Variables	Antenatal Factors		Chi - Square Test
		Mild	Moderate	
1	**Age**			NS 3.834
	less than 21 years	9	0	
	21 to 30 years	36	5	
	above 30 years	7	3	
2	**Educational Status**			* 10.865
	Illiterate	7	3	
	Primary School	16	2	
	High School	23	-	
	Higher Secondary	2	2	
	Graduate	4	1	
3	**Occupation**			NS 1.638
	Government	4	1	
	Non Government	9	2	
	Daily wages	22	4	
	House Wife	22	4	
	Seasonal workers	5	χ 0	
4	**Type of family**			NS 0.210
	Nuclear family	28	5	
	Joint family	24	3	
5	**Religion**			NS 0.787
	Hindu	28	5	
	Christian	14	1	

	Muslim	10	2	
6	**Income of the family**			* 6.503
	Less than 2000	8	3	
	Rs.2001 – 5000	20	5	
	More than 5000	24	-	
7	**Area of residence**			NS 0.930
	Rural	29	3	
	Urban	23	5	
8	**Type of Marriage**			NS 3.357
	Consanguineous	21	6	
	Non Consanguineous	31	2	
9	**Nutritional pattern**			NS 2.265
	Vegetarian	8	3	
	Non vegetarian	44	5	
	Order of the child			NS 4.046
	First	6	3	
	Second	26	2	
	Third and Above	20	3	
	Sex of the baby			NS 0.865
	Male	30	6	
	Female	22	2	
	Gestational weeks			NS 0.707
	Less than 37 weeks	18	4	
	More than 37 weeks	34	4	

** - Significant at 0.01 level

*- Significant at 0.05 level

NS – No Significant

The data presented in the Table VII_b shows that the chi - square test was carried out to find out the association between the antenatal factors and demographic variables.

The results show that there was no significant association between the antenatal factors and demographic variables such as, age, occupation, type of family, religion, area of residence, nutritional pattern, order of the child, sex of the baby, gestational weeks. There was a significant association between the obstetrical factors and educational status, income of the family, type of marriage.

Table VII$_c$ Association between Nutritional factors and demographic variables of the mothers and child

N=60

Sl. No	Demographic Variables	Nutritional Factors			Chi – square test
		Mild	Moderate	Severe	
1	**Age**				NS 0.867
	less than 21 years	4	4	1	
	21 to 30 years	13	19	9	
	above 30 years	3	5	2	
2	**Educational Status**				NS 10.743
	Illiterate	2	6	2	
	Primary School	5	9	4	
	High School	6	12	5	
	Higher Secondary	3	-	1	
	Graduate	4	1	0	
3	**Occupation**				** 19.629
	Government	0	3	2	
	Non Government	2	5	4	
	Daily wages	8	13	5	
	House wife	10	3	0	
	Seasonal workers	-	4	1	
4	**Type of family**				NS 1.693
	Nuclear family	12	13	8	
	Joint family	8	5	4	
5	**Religion**				* 9.629
	Hindu	13	13	7	
	Christian	6	9	0	

	Muslim	1	6	5	
6	**Income of the family**				NS 4.112
	Less than 2000	1	7	3	
	Rs.2001 – 5000	9	12	4	
	More than 5000	10	9	5	
7	**Area of residence**				NS 3.023
	Rural	13	15	4	
	Urban	7	13	8	
8	**Type of Marriage**				NS 0.539
	Consanguineous	8	14	5	
	Non Consanguineous	12	14	7	
9	**Nutritional pattern**				NS 1.018
	Vegetarian	4	6	1	
	Non vegetarian	16	22	11	
10	**Order of the child**				NS 3.603
	First	1	6	2	
	Second	11	13	4	
	Third and Above	8	9	6	
11	**Sex of the baby**				NS 0.714
	Male	13	17	6	
	Female	7	11	6	
12	**Gestational weeks**				NS 0.595
	Less than 37 weeks	6	11	5	
	More than 37 weeks	14	17	7	

** - Significant at 0.01 level
*- Significant at 0.05 level

NS – No Significant

The data presented in the Table VII_c shows that the chi - square test was carried out to find out the association between the nutritional factor and demographic variables.

The results shows that there was no significant association between the nutritional factors and demographic variables such as age, educational status, type of family, income of the family, area of residence, type of marriage, nutritional pattern, order of the child, sex of the baby, gestational weeks There was a significant association between the nutritional factors and occupation of the mothers and religion.

Table VII$_d$ Association between Fetal factors and demographic variables of the mothers and child

N=60

Sl. No	Demographic Variables	Fetal Factors			Chi - Square Test
		Mild	Moderate	Severe	
1	**Age**				NS 3.530
	less than 21 years	6	1	2	
	21 to 30 years	24	14	3	
	above 30 years	7	2	1	
2	**Educational Status**				NS 10.618
	Illiterate	6	1	3	
	Primary School	13	5		
	High School	11	9	3	
	Higher Secondary	3	1		
	Graduate	4	1		
3	**Occupation**				* 15.384
	Government	2	2	1	
	Non Government	7	4	0	
	Daily wages	17	6	3	
	House wife	11	2	0	
	Seasonal workers	-	3	2	
4	**Type of family**				NS 0.174
	Nuclear family	20	10	3	
	Joint family	17	7	3	
5	**Religion**				NS 1.207
	Hindu	21	9	3	
	Christian	10	4	1	

	Muslim	6	4	2	
6	**Income of the family**				* 12.424
	Less than 2000	3	4	4	
	Rs.2001 – 5000	18	6	1	
	More than 5000	16	7	1	
7	**Area of residence**				* 6.630
	Rural	22	5	5	
	Urban	15	12	1	
8	**Type of Marriage**				NS 0.791
	Consanguineous	15	9	3	
	non Consanguineous	22	8	3	
9	**Nutritional pattern**				NS 1.782
	Vegetarian	5	4	2	
	Non vegetarian	32	13	4	
10	**Order of the child**				NS 9.032
	First	4	2	3	
	Second	20	8	0	
	Third and Above	13	7	3	
11	**Sex of the baby**				NS 2.319
	Male	25	8	3	
	Female	12	9	3	
12	**Gestational weeks**				NS 1.105
	Less than 37 weeks	12	8	2	
	More than 37 weeks	25	9	4	

** - Significant at 0.01 level

*- Significant at 0.05 level

NS – No Significant

The data presented in the Table VII_d shows that the chi - square test was carried out to find out the association between the fetal factors and demographic variables.

The results shows that there was no significant association between the fetal factors and demographic variables such as age, educational status, type of family, religion, type of marriage, nutritional pattern, order of the child, sex of the baby, gestational weeks. There was a significant association between the fetal factors and occupation, income of the family, area of residence.

CHAPTER - V

DISCUSSION

The aim of present study was to determine the prevalence of low birth weight and its risk factors among postnatal mothers in the selected hospital, in Madurai. The sample size was 60.

Objectives

- To find out the prevalence of low birth weight babies in the selected hospital in Madurai.

- To identify the level of risk factors for low birth weight among postnatal mothers in the selected hospital in Madurai.

- To find out the relationship between the low birth weight and its risk factor among postnatal mothers in the selected hospital in Madurai.

- To find out the association between low birth weight and the selected demographic variables such as, age, educational status, occupation, type of family, religion, income of the family, area of residence, type of marriage, nutritional pattern, order of the child, sex of the baby, gestational weeks.

- To find out the association between risk factors and the selected demographic variables such as, age, educational status, occupation, type of family, religion, income of the family, area of residence, type of marriage, nutritional pattern, order of the child, sex of the baby, gestational weeks.

The objectives of the study were:

The first objective was to find out the prevalence of low birth weight in the selected hospital in Maduari.

Table III shows that, 48% were moderate low birth weight, 43% were very low birth weight, and 9% were extreme low birth weight.

Hence the researcher concludes that there is more prevalence of moderate low birth weight than very low birth weight and extreme low birth weight.

Overall, the prevalence of low birth weight in Rajaji Hospital was 16% during the period of data collection.

The findings were supported by **Chhahra P.Sharma (2004)** and it showed that the prevalence of low birth weight in urban resettlement area of Delhi was 39.1%.

The second objective was to identify the level of risk factors for low birth weight among postnatal mothers in the selected hospital in Madurai.

Table IV shows that, the obstetrical factors 38(63%) were mild, 20 (33%) were moderate risk factors and 2 (3%) were severely influencing the low birth weight. Regarding antenatal factors 52 (87%) were mild 8 (13%) were moderate and no severe risk factor of low birth weight. Regarding nutritional factors 20(33%) were mild, 28(47%) were moderately, 12 (20%) were severe risk factors of low birth weight. Regarding fetal factors 37 (62%) were mild, 17 (28%) were moderate and 6 (10%) were severe risk factors of low birth weight.

Hence, the researcher is concludes that a nutritional factor is severe risk factors for low birth weight. And obstetrical factors, antenatal factors are moderate risk factors of low birth weight and fetal factors also influencing the low birth weight.

Overall it is understood that low birth weight is not because of one single factor, but it is because of multiples factors as discussed. So, measures can be taken to minimize the prevalence of low birth weight.

The findings were supported by **Shah (2002)** reported that maternal nutrition is the most vital and study shows that the major factors contributing low birth weight infant is the chronic malnutrition of the mother.

The third objective was to find out the relationship between the low birth weight and its risk factor among postnatal mothers in the selected hospital in Madurai.

Table V shows that, to find out the relationship between low birth weight and its risk factors co-efficient correlation was used. The computed 'r' value is 0.39. The positive correlation was found between low birth weight and its risk factor.

Hence the researcher concludes that the low birth weight was influenced by certain factors.

The findings were supported by **Mondal, B (2000)** conducted a study on risk factor for low birth weight in Nepal infants. He reported that the incidence of low birth weight was 21.53%. The result of univarible analysis revealed the maternal age, parity, gestation period, economic

condition and maternal education was significantly related to the incidence of low birth weight.

The fourth objective was to find out the association between low birth weight and demographic variables such as age, educational status, occupation, type of family, religion, income of the family, area of residence, type of marriage, nutritional pattern ,order of the child, sex, gestational weeks.

$H_0$2: There will a significant association between low birth weight and its selected demographic variables.

The table VI_a shows that there is a significant association between the low birth weight and age of the mother, educational status, family income, nutritional pattern.

Table VI_b shows that there was a significant association between the low birth weight and order of the child, Gestational weeks.

Hence, the researcher accepted the research hypothesis and rejected null hypothesis.

The findings were supported by **Valappil** (2002) who did a study in Hennep to examine the association between low birth weight and prenatal care. Taking into account age and educational status of the mother. The study was conducted during the period of 1996-1998. There were 46428 births. Out of this 3099 were low birth weight and among this 6.75 was born to mothers who have not received prenatal care during the first trimester of pregnancy. The study revealed a significant positive association between low birth weight and mother's age and education.

The findings were supported by Bhatia (2002) who conducted a study on epidemiological factors affecting low birth weight and study was

conducted in a public hospital Mumbai. Result shows that the incidence of the low birth weight was 37%. The factors which had statistically significant association with low birth weight were higher birth orders, less percapita income, less duration of gestation, low socioeconomic status.

Others findings showed that there was no significant association between the low birth weight and other selected variables such as occupation, type of family, religion, area of residence, type of marriage, sex of the baby.

Hence, the researcher, concludes that the samples were not equally distributed by occupation, type of family, religion, area of residence, type of marriage, sex of the baby. Because majority of the mothers fall above the half of the size of sample selected variable that is 43% were daily wages, 55% were belongs to nuclear family, 55% were Hindu, 53% were Rural, 55% were in non consanguineous 81.7% were non vegetarian. So it blindly indicates that there was no significant association.

The fifth objective was to find out the association between risk factors and demographic variables such as, age, educational status, occupation, type of family, religion, income of the family, area of residence, type of marriage, nutritional pattern , order of the child, sex, gestational weeks.

$H_0$3 there will be a significant association between risk factors and demographic variables.

Table VII_a shows that there was a significant association between the demographic variables (type of marriage) and risk factors (Obstetrical factors)

Other findings showed that, there was no significant association between obstetrical factor and demographic variables such as age, educational status, occupation, type of family, religion, and income of the family, area of residence, nutritional pattern, order of the child, sex of the baby, gestational weeks.

Table VII_b shows that there was a significant association between the education status, family income, type of marriage and antenatal factor.

Table VII_c shows that there was a significant association between occupation of the mother, religion and nutritional factor.

Table VII_d shows that there was a significant association between occupations, income of the family, area of residence and fetal factor.

Hence, the researcher concluded that there was a significant association between the risk factors and demographic variables such as family income, type of marriage, religions, occupation, area of residence and educational status.

Hence, the researcher partially accepted research hypothesis and rejected null hypothesis.

The findings were supported by **Radhakrishnan, et.al., (2000**). The study shows that socio-economic status was the principle determinant of low birth weight.

Other findings showed that there was no significant association between the obstetrical factors, antenatal factors, nutritional factors, fetal factors and demographic variables such as, age, family type, sex of the baby, gestational weeks, orders of the child and nutritional pattern.

Hence, the researcher concluded that the samples were not equally distributed by age, family type, sex of the baby, gestational weeks, order of the child and nutritional pattern.

CHAPTER – VI

SUMMARY, CONCLUSION AND RECOMMENDATIONS

This chapter presents the summary, major findings, implication, recommendation and conclusion of the study.

SUMMARY

Birth weight is known to be an important factor, which the Newborn baby adjusts to its surrounding, and it is a critical determinant survival in the neonatal period and for future growth and development of the Newborns.

A review of related literature enabled the investigator to develop conceptual framework, methodology for the study and plan for analysis of data were in an effective and efficient way. The conceptual framework adapted for this study was health belief model.

A quantitative approach, an explorative design was used to determine the prevalence of low birth weight and its risk factor among postnatal mothers.

The tools used for the study were planned interview schedule prepared by the investigator, consisting 3 parts. Tool : 1- consist of 2 section, section A consist of a demographic variable of the mother and section B consist of demographic variable of the child and Tool : 2 consist of categorization of LBW based on WHO, Tool : 3 consist of questions to assessing the risk factors such as

Section I : Obstetrical factors
Section II : Antenatal factors

Section III : Nutritional factors

Section IV : Fetal factors

The setting of the study was the postnatal ward of Government Rajaji Hospital in Madurai district in Tamilnadu with a sample size of 60 mothers of LBW new born. The researcher used purposive sampling technique and samples were selected according to the inclusion criteria.

The gathered data were tabulated, grouped and analyzed. Descriptive and inferential statistics (i.e. frequency, percentage, chi-square, co-efficient of correlation) were used for analysis.

MAJOR FINDING OF THE STUDY

SAMPLE CHARACTERISTICS

Totally 15% were below 21 years, 68% were 21-30 years, 17% were above 30 years.

Regarding education of the mothers 17% were illiterates, 30% were from primary, 38% were from high school, 7 % were from higher secondary , 8% were from graduates.

Regarding occupation of mothers 8% were Government officers, 18% were non Government officers, 43% were daily wages, 22% were housewives and 8% were seasonal workers.

Regarding family type 55% were nuclear family, 45% were joint family.

Regarding religion 55% were Hindu, 25% were Christian, 20% were Muslim.

Regarding family income 18% were below 2000, 42% were 2001-5000, 40% were above 5000.

Regarding area of residence 53% were from rural and 28% were from urban

Regarding type of marriage 45% were consanguineous 55% were non consanguineous.

Regarding nutritional pattern 18% were vegetarians and 82% were Non-vegetarians

Regarding order of the child 15% were first born, 47% were second born, 38% were third and above born.

Regarding sex 60% were male child, 40% were female

Regarding gestational weeks 37% were below 37 weeks and 63% above 37 weeks.

PREVALENCE OF LOW BIRTH WEIGHT

Regarding prevalence 48% were moderate low birth weight, 43% were very low birth weight and 9% were extreme low birth weight.

RISK FACTORS (LEVEL)

- Obstetrical factors 63% mild, 33% moderate and 3% severe risk factor of LBW
- Antenatal factors 87% mild, 13% moderate risk factor of LBW
- Nutritional factors 33% were mild, 47%, moderate and 20% severely influencing the LBW
- Fetal factors 62% mild, 28% moderately 10% severely influencing the LBW

RELATIONSHIP

There was a positive correlation between LBW and risk factors of low birth weight

ASSOCIATION

- There was a significant association between low birth weight and age of the mothers, educational status, income of the family, nutritional Pattern, order of the child and gestational weeks.
- There was a significant association between antenatal factors and educational status, income of the family, type of marriage.
- There was a significant association between nutritional factors and occupation and religion of the mother.
- There was a significant association between fetal factors and occupation, income of the family, area of residence.

NURSING IMPLICATION

The findings of the study have implication to nursing practice, nursing education, nursing administration and nursing research.

IMPLICATION FOR NURSING PRACTICE

- The study will help the nurses in the hospital and community to plan for antenatal health education programme.
- Health education activities can be initiated for the students and early detection of the risk factors.
- Marital counselling can be given to the girls of reproductive age group regarding the age at marriage and the pre pregnant weight.
- The findings would help the nurses in planning, organizing, implementing the measures to reduce the low birth weight.

IMPLICATION FOR NURSING EDUCATION

Findings of the study have some implications for nursing education too.

- Nurse educators can encourage students to conduct health educational program and exhibition to antenatal mothers.
- Nurse educators can encourage creative insight of students nurse to prepare pamphlets in various aspects of antenatal care.
- The Nurse educators can use the result of the study as information to the students.
- Nursing students must be trained to trace the risk factors during the antenatal period itself.
- Nurse educators can help in inculcating value and sense of responsibility in the students to care for antenatal mothers in the hospital and community to bring a healthy child to the nation.
- Findings of the study can be used for updating the knowledge of nursing personnel. It would provide a broad frame work in which further research can be conducted.

IMPLICATION FOR NURSING ADMINISTRATION

- ❖ Nurse administrator can disseminate the research knowledge into practice, so that antenatal mothers can be benefited.
- ❖ Nurse administrator can conduct workshop on antenatal care
- ❖ Nurse administrator can encourage peripheral nurse to conduct health visit regularly for antenatal mothers
- ❖ Nurse administrator can use mass media to create awareness about importance of antenatal care.

IMPLICATION FOR NURSING RESEARCH

- Extensive research can be conducted to find out the health problems of Low birth weight.
- The study can be a base line for future studies
- Nursing research contributes professional development of child health nurse.

RECOMMENDATION

- Similar study can be conducted using a large sample.
- Experimental study may be conducted to see the effectiveness 0f proper antenatal care on risk mothers.
- Explorative study may be conducted to assess the knowledge of the mothers regarding LBW and its prevention.
- Explorative study may be done to assess the knowledge of the mothers regarding care of low birth weight babies.
- A comparative study can be conducted among rural and urban mothers.

Conclusion

Motherhood is a beautiful and joyous experience to a woman and birth weight is a critical determinant for survival in the neonatal period for future. If the baby is born with less weight, it is an anxiety for the mother and entire family. As per the record, the occurrence of low birth weight is high in Government Rajaji Hospital in Madurai District. Based on the results the investigator felt that there is a need for good antenatal care to prevent the occurrence of low birth weight. Interactive method of teaching that is question and answer with booklet is an effective method of increasing the knowledge of mothers regarding prevention of low birth weight.

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APPENDIX – I

LETTER SEEKING EXPERT'S OPENION FOR CONTENT VALIDITY OF TOOL

From

Ms. K. Aruna
M.Sc Nursing II Year,
Matha College Of Nursing,
Manamadurai.

To

Respected Madam/Sir.

Sub: Requesting opinion and suggestion for content validity of tool.

I am a final year Master Degree Nursing student in Matha College of Nursing, Manamadurai. In partial fulfillment of master degree in Nursing I have selected the topic given below, for the Research Project to be submitted to Dr. MGR Medical University, Chennai.

Problem statement: "**A study to determine the prevalence of low birth weight and its risk factors among postnatal mothers in the selected hospital in Madurai**".

I request you to kindly validate the tool and give your expert opinion for the necessary modification and I would be happy if you could refine the problem statement, the objectives and the questionnaire.

I have enclosed the following with this letter,

1. Problem statement, Objectives of the study, Demographic Performa,
2. Tool-I –Questionnaire to assess the level of risk factor for low birth weight.
3. Plan teaching module regarding prevention and care of low birth weight.

Thanking you with anticipation.

Place: Madurai yours sincerely,

Date: ***(K. Aruna)***

APPENDIX- II

LETTER SEEKING PERMISSION TO CONDUCT STUDY

To

Respected Sir/madam,

Sub: Matha College of Nursing, Manamadurai – Dissertation work of M.Sc. Nursing student, in selected hospital.

I am to state that **Ms. K. Aruna** is one of our final years M.Sc. Nursing student, Matha College of Nursing, Manamadurai has to conduct a research project, as the partial fulfillment of university requirements for the degree of Master of Science in Nursing.

The statement of the problem is:

"**A study to determine the prevalence of low birth weight and its risk factors among postnatal mothers in the selected hospital in Madurai**".

I request you to kindly permit her to do the research in your esteemed hospital and give your valuable guidance and suggestions.

Thanking you,

Place: Madurai yours faithfully

Date: Prof. Mrs. Jebamani Augustine,M.sc(N)

principal

APPENDIX- III

List of experts

Mrs. **THAMARAISELVI, M.Sc., (N)**
Prof. in OBG department
Matha college of nursing,
Manamadurai.

Mrs**. JASMINE,M.SC.,(N)**
Lecture in child Health Nursing,
Matha college of nursing,
Manamadurai.

Mrs. **JESSY, M.Sc., (N)**
Lecturer in Pediatric Department
C.S.I. College of Nursing
Madurai.

Mrs. **LISHA CHRISTY, M.Sc., (N),**
Lecturer in Pediatric Department
College of Nursing
Thirunalvali.

Dr. PRABHAKAR NAVAMANI M.D, DCH,
Navamani child specialty hospital,
Madurai,
Tamilnadu.

APPENDIX - IV

STRUCTURED INTERVIEW SCHEDULE ON FACTORS RELATED TO LOW BIRTH WEIGHT BABIEES

PART – I

SECTION – A - DEMOGRAPHIC VARIBLES OF THE MOTHERS

1. Age
   a) Less than 21 years
   b) 21 – 30 years
   c) above 30 years ( )

2. Educational Status
   a) Illiterate
   b) Primary (1-5)
   c) High School (6-10)
   d) Higher secondary (11-12) ( )

3. Occupation
   a) Government
   b) Non – Government
   c) Daily wages
   d) House wife
   e) Seasonal workers ( )

4. Type of family
   a) Nuclear family
   b) Joint family ( )

5. Religion
   a) Hindu
   b) Christian
   c) Muslim ( )

6. Income of the family
   a) Less than Rs. 2000
   b) 2001 – 5000
   c) More than 5000 ( )

7. Area of Residence
   a) Rural
   b) Urban ( )

8. Type of marriage
   a) Consanguineous
   b) Non Consanguineous ( )

9. Nutritional pattern
   a) Vegetarian
   b) Non vegetarian ( )

SECTION – B - DEMOGRAPHIC VARIBLES OF THE CHILD

10. Order of child
    a) 1
    b) 2
    c) 3 and above ( )

11. Sex of the baby
    a) Male
    b) Female ( )

12. Gestational weeks
    a) Less than 37 weeks
    b) more than 37 weeks ( )

PART – II

Scoring procedure for prevalence

CLASSIFICATION OF LOW BIRTH WEIGHT

MLBW - 1500 to 2500 grams
VLBW - 1000 to 1499 grams
ELBW - Less than 1000 grams

PART III

Questions to assess the level of risk factors

SECTION: I

Obstetrical Factors

S. NO	QUESTIONNAIRE	YES	NO
1	Your age was below 20 at the time of conception		
2	First conception was after 30 years of age		
3	The spacing between child was less than 2 years		
4	State whether you had any previous low birth weight or premature birth		
5	History of still birth		
6	History of abortion		

Score key

Total No. of questions : 6

Total No. of score : 6

If, yes : 1

No : 0

SECTION: II

Antenatal factors

S. NO	QUESTIONNAIRE	YES	NO
7	Immunization was received during pregnancy		
8	Exposure of any acute fever at the time of pregnancy		
9	History of ante partum hemorrhage is present during pregnancy		
10	History of excessive vomiting present during pregnancy		
11	Height is less than 145 cm		
12	History of cervical incompetence was present		
13	Signs of discharge or secretion, foul smelling from reproductive organ		
14	History of pregnancy induced hypertension is present during pregnancy		
15	History of hydraminos is present during pregnancy		
16	History of anemia was present during pregnancy		
17	Met any stress and anxiety at the time of pregnancy		

18	History of preeclampsia was present during pregnancy		
19	History of premature rupture of membrane		
20	History of diabetes mellitus		
21	History of preterm labour		
22	Under went any treatment for infertility		
23	History of cardiac problems was present during pregnancy		
24	Had sexual relation with your partner during last trimester		
25	Weight during pregnancy was lass than 45.5 kg		
26	History of any renal problem		

Score key

Total No. of questions	:	20
Total No. of score	:	20
If, yes	:	1
No	:	0

SECTION: III

Nutritional Factors

S. NO	QUESTIONNAIRE	YES	NO
27	Have any knowledge about antenatal diet		
28	Balance diet was consumed during pregnancy		
29	Taken any special food at the time of pregnancy		
30	Iron and folic acid supplements taken during pregnancy		
31	The weight was increased up to 10-12 kg during pregnancy		

Score key

Total No. of questions : 5

Total No. of score : 5

If, yes : 1

No : 0

SECTION: IV

Foetal Factors

S. NO	QUESTIONNAIRE	YES	NO
32	History of multiple gestation		
33	History of Intrauterine infection (TORCH) was present to the child		
34	History of fetal distress or fetal hypoxia		
35	History of any congenital malformation		

Score key

Total No. of questions : 4

Total No. of score : 4

If, yes : 1

No : 0

SELF INSTRUCTIONAL MODULE ON PREVENTION AND CARE OF LOW BIRTH WEIGHT

APPENDIX – V

SELF INSTRUCTIONAL MODULE ON PREVENTION AND CARE OF LOW BIRTH WEIGHT

Introduction

The birth of new born is one of the inspiring and emotional events that can occur in every one's lifetime.

The neonates are soft, tender and they require physical as well as psychological support in order to get adjusts to the external environment.

Incidence

In the world 22 million children are born every year with low birth weight. In Indian alone 7 to 10 million low birth weight babies are born annually.This accounts for about 30 percentages of deliveries with low birth weight.

Definition of Low Birth Weight Newborn

Any newborn weighing less than 2500 gm at birth irrespective of the period of gestation is called as low birth weight newborns.

About 10 to 12 percent of Indian babies are born preterm. These new born are anatomically and functionally immature and therefore their Neonatal mortality is high.

Causes of low birth weight

S. No	Causes	Rational
1	Mother's weight less than 40 Kg during pregnancy	When the Nutrition of the mother is poor the fetus suffers from growth retardation
2	Mother's age less than 20 years or more than 35 years	The fetus will get inadequate oxygen and Nutrition from the placenta which lead to growth retardation
3	Mother's height less than 145 cm	Mother may be suffering from chronic malnutrition from childhood which can be a cause for decreased nutrition for the growing fetus.
4	Multiple pregnancy (e.g.) Twins	Single placenta cannot meet the needs of more than one fetus and leads to nutritional deficiency.
5	Anemia in pregnancy	Decreased hemoglobin in the maternal blood leads to decreased oxygen to the fetus.
6	Multi gravida	There is a chance for decreased nutritional status of mother in turn can affect the fetus because the fetus may not get adequate nutrition which is essential for their growth
7	Complications of pregnancy e.g. Increased blood pressure	It can lead to preterm delivery and low birth weight.
8	Excessive physical exertion E.g. : Manual labour	Lead to preterm delivery because of early uterine contraction
9	Bad habits of the mother E.g. Smoking	Nicotine in the smoke can lead to decreased oxygen to the placenta which will lead to decreased nutrition to the foetus.

Difference between low birth weight newborns and normal newborns

Characteristics	Low birth weight Newborn	Normal Newborn
Gestational age	Born before 37 weeks of pregnancy or born after 37 weeks but are with low weight at birth	Born after completion of 37-40 weeks of gestation
Birth Weight	Less than 2500 grams	2500-3500 grams
Skin Color	Bright Pink	Pink
Posture	The preterm babies lie in a relaxed attitude	Term babies have more subcutaneous fat tissue and rests in a more flexed attitude.
Ear	Ear cartilages are poorly developed and the ear pinna may fold easily.	Ear cartilage are well formed
Sole	Only few crazes	Well and deeply (creased)
Appearance	Weak, drowsy, cry is weak poor sucking ability	Active, wake up for feeds has strong cry and sucking
Respiration	Noisy breathing, can be fast as slow	Clear, rate 30-40 per minute

Physiological alterations in a low birth weight newborn
Difficulty in maintaining normal body temperature

In a newborn the heat loss can occur due to the following reasons.

- If the new born is not dried immediately after bath heat loss occurs due to evaporation.

- If the newborn is kept open in direct contact with the cold surface heat loss occurs due to conduction

- The Low birth weight newborns have less subcutaneous fat on the skin and also their weight which makes it difficult for them to maintain a normal body temperature which can lead to reduced body temperature.

In adequate respiratory Functioning

In a low birth weight newborns the lungs are poorly developed and they have a weak respiratory muscles. The Structures for respiration are also not developed fully. This leads to the development of respiratory problems like apnea and cyanosis.

Immaturity of liver

In a low birth weight newborn the bilirubin excretion does not take place fast which can lead to Jaundice.

Poor Immunological functioning

In a normal newborn the immunoglobulin G is transferred to the baby in the later months of pregnancy. This helps in protecting the newborn from infection.

In a premature baby the level of IgG is low due to the reason that they have not completed the term. So these newborns are prone to suffer from infection.

Inadequate gastro intestinal functioning

A normal gastro intestinal structures are essential for the proper intake and digestion of food. In a low birth weight newborn the size of the stomach is small so the capacity is less. Also the cardiac sphincters muscles controlling the passage of food from upper tract to lower tract are immature. This can lead to regurgitation

Difficulty in feeding

Nutrition is an essential aspect for the newborn. In order to have adequate feeding sucking and swallowing reflexes are important. The low birth weight newborn has difficulty in feeding because the newborn has poor sucking and swallowing reflex. Which makes it difficult for the baby to have adequate breast feeds. So this newborn can suffer from decrease level of calcium and glucose in the body which can lead to serious problems.

What is an infection and from where it occurs?

Infection is the entry of disease causing micro organisms in to the body.

The causes of Infection are:

- Dirty toys and cloths
- If there is dust in the atmosphere which can enter in to the body through respiration.
- If the glasses or Vessels used for feeding are not washed properly there can be Micro organisms which can cause infections.
- If the visitors are suffering from cold, cough or any other communicable disease which can transfer to the newborns.
- The routes of entry of these organisms are through skin, eyes, nose, and mouth and through the umbilical cord.

If the newborn develops infection then they will have difficulty in maintaining normal body function.

Prevention of low birth weight Babies

1. Direct Intervention
2. Indirect Intervention

Direct intervention

Diet

The diet should be adequate and balanced. It should provide the following Nutrients.

a) Calories – 3300
b) Protein – 65g
c) Iron – 40mg
d) Calcium – 1 gm

- Daily intake of at least 2 glasses of milk is essential. Milk provides quality protein and calcium.
- Intake of Fresh green leafy vegetables. Seasonal fruits, eggs and meat should be encouraged in order to meet the dietary.
- Even during the last trimester, small dietary improvement can result in a significant improvement in the weight of the infant.

Antenatal Visit

- The Pregnant mother should visit the antenatal clinic once a month during the first 7 months, twice a month during the next 2 months and thereafter once a week .
- The Pregnant mother should visit the antenatal clinic at least 3.

Immunization:

The Antenatal mother should be immunized against tetanus.

Drugs: Drugs should be used only when essentially required but under doctor's supervision.

Avoidance expose to X-Ray

The Pregnant woman should not unnecessarily expose herself to X-ray of the abdomen, especially the first 4 months of pregnancy. X-ray may cause malformation of the fetus.

Warning Signs

If the mother had any warning sing like swelling feet, fits, headache, blurring vision, bleeding per vagina are to be reported for emergency obstetric care.

Iron and Folic acid tablet

T. Iron and Folic acid containing 60mg elemental Iron and500mg of Folic acid. The mother should take minimum 100 tablets during a pregnancy.

Early detection and treatment of problem

The mother affected with any problem it should be detected early and the mother should take appropriate treatment for that. Such as pregnancy induced hypertension, DM

Controlling of Infection

Maternal Infection should be diagnosed and treated immediately such as cytomegalo virus infection, Rubella, toxoplasmosis. These infectios can effect foetal growth

Personal Hygiene

- The Mother should take bath daily
- Wear clean cloth

Rest and Sleep: The mother should sleep at least 8 hrs and 2 hrs rest after mid –day meals.

Exercises

The mother should do the light house hold work but not lifting heavy weight especially during the later part of pregnancy

Smoking

Smoking should be avoided because the presence of nicotine in the smoke can lead to decreased oxygen to the placenta which will lead to decreased nutrition to the fetus.

Sexual Intercourse

It should be restricted especially during the last trimester

Indirect Intervention

- Family planning
- Improvement in socio –economic condition and environmental conditions
- Availability of health and social services

. **Management of a low birth weight newborn:**

Temperature regulation

The body temperature of a newborn has to be maintained between 97.77 to 98.2 F

You can maintain the body temperature of your low birth weight newborn by the following measures.

- The newborn is not kept near to doors and windows
- Dry quickly and thoroughly after bath

- Dress warmly and wrap. Mummifying with adequate clothing is one of the methods to keep the newborn warm.
- Kangaroo mother care – keep the baby between the mother's breast. Breast feed the newborns.

Maintenance of adequate respiratory functioning

❖ Loosen if any tight clothing's are applied

❖ Then observe the respiration

❖ Cover the baby, especially the extremities because extreme cold also can cause bluish discoloration.

❖ Sea that the neck is properly placed in extended position.

Infection control

As we have already seen that low birth weight newborns have less immunity and they are prone to infection. we need to prevent them from infection.

Prevention of infection

∗ Wash hands with soap and water before you touch the baby or before feeding

∗ Restrict visitors who have respiratory tract infection or any other communicable disease

∗ Keep the linen and articles separate for the baby

∗ The room has to be cleaned daily but do not use dry dusting because this can cause respiratory infections

∗ Before wash your babies cloth sock it in Dettol solution for 2 hours

∗ Dry the cloths in sunlight

Maintenance of adequate gastrointestinal functioning

If you have noticed that your baby is having regurgitation immediately after the feeds then you can do the following measures.

∗ Feed your baby when he/she demands

* Perform burping after each feed
* Keep the baby in right lateral position immediately after feeding. This helps to reduce the pressure on the stomach

Nutrition for Low birth Weight new born

- ❖ Breast milk in the complete Nutrition for your baby. There are some advantages of breast milk.
- ❖ Breast milk is the best natural food for the babies
- ❖ Breast milk always clean
- ❖ Breast milk does cost anything
- ❖ Breast milk makes special relationship between mother and baby.

Daily routine care

Eye care

Clean the eyes with sterile cotton swab or with clean cloth during bath. Use one swab for one eye and clean from the part near to the nose to outer

Care of the Umbilical cord

- o Clean the umbilical cord with clean water
- o Do not apply cow dung or ghee

Care of the skin

- ❖ Clean the skin with a soft clean cloth dipped warm water
- ❖ Immediatly dry the newborn
- ❖ Special attention has to given to the axilla, genitals and the buttocks

Sun Bath

By exposing your baby to the early morning sun light you can provide vitamin - D for your baby

Some Principles for the healthy living of your child

- ❖ Regular Check up by a doctor
- ❖ cleanings of the body and surroundings
- ❖ Breast feedings
- ❖ Weaning after completion of 3 months
- ❖ Provide Fresh air
- ❖ Wear cloths appropriate for the season
- ❖ Adequate rest and sleep
- ❖ Immunization as per the schedule.
- ❖

conclusion

Now I hope that you would have understood the various factors that lead to low birth weight and the measures that can be taken to prevent and manage it. So it is important that you have to follow a proper antenatal care and diet.

Thank You

APPENDIX - VI

பிறக்கும் குழந்தைகளின் எடை குறைவதற்கான காரணிகள் குறித்த வரையறுக்கப்பட்ட நேர்முகத்தேர்வு அட்டவணை

குறிப்பு : **இந்த அட்டவணையில் பிறக்கும் குழந்தைகளின் எடை குழந்தைகளின் எடை குறைவிற்கான காரணிகள் குறித்த கேள்விகள் கொடுக்கப்பட்டுள்ளன. அட்டவணையை பயன்படுத்தி தாய்மார்கள் ஒவ்வொருவரிடமும் கேள்விகள் கேட்கப்பட்டு சரியான பதிலுக்கு எதிரில் (✓) செய்யப்படும்.**

பகுதி - 1

பகுதி - அ
தாய்மார்களின் விபரம்

1. வயது
   அ) 21 வருடங்களுக்கு கீழ்
   ஆ) 21-30 வருடங்கள்
   இ) 30 வருடங்களுக்கு மேல் ( )

2. கல்வித்தகுதி
   அ) படிக்காதவர்கள்
   ஆ) உயர்நிலைப்பள்ளி
   இ) மேல்நிலைப்பள்ளி
   ஈ) பட்டதாரி ( )

3. தொழில்நிலை
   அ) அரசு ஊழியர்
   ஆ) தனியார் நிறுவனம்
   இ) கூலி
   ஈ) இல்லத்தரசி ( )

4. குடும்ப வகை
   அ) தனிக்குடும்பம்
   ஆ) கூட்டுக்குடும்பம் ( )

5. மதம்
   அ) இந்து
   ஆ)கிறிஸ்துவம்
   இ) முஸ்லீம் ( )

6. குடும்ப மாத வருமானம்
   அ) 2000-க்குள்
   ஆ) 2001 முதல் 5000-க்குள்
   இ) 5000 மற்றும் அதற்கு மேல் ( )
7. இருப்பிடம்
   அ) கிராமம்
   ஆ) நகரம் ( )

8. திருமண வகை
   அ) உறவு
   ஆ) உறவல்ல ( )

9. உணவு வகை
   அ) சைவம்
   ஆ) அசைவம் ( )

பகுதி - ஆ
குழந்தையை பற்றிய விபரம்

10. குழந்தையின் பிறப்பு நிலை
   அ) 1
   ஆ) 2
   இ) 3 மற்றும் அதற்கு மேல் ( )

11. பாலினம்
   அ) ஆண்
   ஆ) பெண் ( )

12. குழந்தையின் கர்ப்பகால வாரம்
   அ) 37 வாரங்களுக்கு கீழ்
   ஆ) 37 வாரங்களுக்கு மேல் ( )

பிரிவு - 2

1. குழந்தையின் பிறந்த எடை
   அ) 1.500 கிலோ முதல் 2.500 கிலோ வரை
   ஆ)1000 கிலோ முதல் 1499 கிலோ வரை
   இ) 1.000 கிலோக்கு குறைவாக ( )

பிரிவு - 3
பகுதி - 1
மகப்பேறு காரணிகள்

வ. எண்	கேள்விகள்	ஆம்	இல்லை
1	கர்ப்பத்தின் போது உங்கள் வயது 20-க்கு கீழாக இருந்ததா?		
2	முதல் கர்ப்பத்தின் போது உங்கள் வயது 30-க்கு மேலாக இருந்ததா?		
3	இரு குழந்தைகளுக்கு இடையே உள்ள இடைவெளி 2 வருடங்களுக்கு கீழாக இருந்ததா?		
4	உங்களுக்கு இதற்கு முன்னர் ஏதேனும் எடை குறைந்து குழந்தை அல்லது குறை மாதத்தில் பிறந்த குழந்தை உண்டா?		
5	உங்களுக்கு இதற்கு முன்னர் ஏதேனும் குழந்தை இறந்து பிறந்துள்ளதா?		
6	உங்களுக்கு இதற்கு முன்னர் ஏதேனும் கருச்சிதைவு ஏற்பட்டுள்ளதா?		

பகுதி - 2
கர்ப்பகால காரணிகள்

வ. எண்	கேள்விகள்	ஆம்	இல்லை
7	நீங்கள் கர்ப்பகாலத்தின் போது இரண்டு தடுப்பூசி போட்டு கொண்டீர்களா?		
8	கர்ப்பகாலத்தின் போது நீங்கள் ஏதேனும் காய்ச்சலால் பாதிக்கப்பட்டீர்களா?		
9	உங்களுக்கு தற்போதைய கர்ப்பத்தின் போது ஏதேனும் இரத்த கசிவு இருந்ததா?		
10	நீங்கள் தற்போதைய கர்ப்பத்தின் போது அதிகப்படியான வாந்தி விளைவுகளால் பாதிக்கப்பட்டீர்களா?		
11	உங்களின் உயரம் 145 செ.மீ-க்கு கீழாக உள்ளதா?		
12	உங்களுக்கு இதற்கு முன்னர் ஏதேனும் கர்ப்பபை வாய் திறந்து இருத்தல் பிரச்சனை இருந்ததா?		
13	உங்களுக்கு வெள்ளைப்படுதல் பிரச்சனை உள்ளதா?		
14	உங்களுக்கு தற்போதைய கர்ப்பத்தின் போது கர்ப்பகால உயர் இரத்த அழுத்தம் விளைவுகளால் பாதிக்கப்பட்டிருக்கீர்களா?		
15	உங்களுக்கு தற்போதைய கர்ப்பத்தின் போது ஏதேனும் நீர்ச்சத்து அதிகமாகவோ அல்லது குறைவாகவோ இருந்ததா?		
16	கர்ப்பத்தின் போது உங்களுக்கு இரத்தசோகை பிரச்சனை இருந்ததா?		
17	கர்ப்பத்தின் போது நீங்கள் மன அழுத்தத்தால் பாதிக்கப்பட்டீர்களா?		

18	கர்ப்பத்தின் போது உங்களுக்கு ஏதேனும் வலிப்புநோய் வந்ததா?		
19	குறிப்பிட்ட பிரசவ காலத்திற்கு முன்னதாகவே உங்களுக்கு நீர்குடம் உடைந்ததா?		
20	உங்களுக்கு சர்க்கரை வியாதி உள்ளதா?		
21	உங்களுக்கு குறிப்பிட்ட பிரசவ காலத்திற்கு முன்னதாகவே வலி ஏற்பட்டு குழந்தை பிறந்ததா?		
22	குழந்தையின்மைக்கு ஏதேனும் சிகிச்சை எடுத்தீர்களா?		
23	கர்ப்பகாலத்தின் போது உங்களுக்கு ஏதேனும் இருதய நோய் இருந்ததா?		
24	கர்ப்பகாலத்தின் இறுதி மாதங்களில் நீங்கள் உடலுறவு வைத்து கொண்டீர்களா?		
25	கர்ப்பகாலத்தின் போது உங்களின் எடை 45 கிலோகிராமுக்கு கீழாக இருந்ததா?		
26	உங்களுக்கு ஏதேனும் சிறுநீரக கோளாரு பிரச்சனைகள் உள்ளதா?		

பகுதி - 3
உணவு முறைக் காரணிகள்

வ. எ ண்	கேள்விகள்	ஆம்	இல்லை
27	கர்ப்பகால உணவுகள் பற்றி ஏதேனும் அறிந்துள்ளீர்களா?		
28	கர்ப்பகாலத்தின் போது சரிவிகித உணவு உட்கொண்டீர்களா?		
29	கர்ப்பத்தின் போது விசேச உணவு வகைகள் உட்கொண்டீர்களா?		
30	நீங்கள் கர்ப்பகாலத்தின் போது இரும்புச்சத்து மாத்திரைகள் உட்கொண்டீர்களா?		
31	கர்ப்பகாலத்தின் போது உங்கள் எடை 10 முதல் 12 கிலோகிராம் வரை அதிகரித்ததா?		

பகுதி - 4
சிசு காரணிகள்

வ. எ ண்	கேள்விகள்	ஆம்	இல்லை
32	கர்ப்பகாலத்தின் போது ஒன்றுக்கு மேற்பட்ட கருதரிப்பு ஏற்பட்டதா?		
33	தற்போதைய கர்ப்பகாலத்தின் போது கருவில் ஏதேனும் தொற்றுநோய் விளைவு ஏற்பட்டதா?		
34	குழந்தை கருவில் இருக்கும்போது மூச்சு திணறல் விளைவு இருந்ததா?		
35	உங்கள் குழந்தைக்கு ஏதேனும் பிறக்கும்போது உடலில் கோளாறுகள் இருந்ததா?		

எடை குறைவான குழந்தை பிறப்பதை தடுக்கும் முறைகள் மற்றும் எடை குறைவான குழந்தையை பராமரித்தல் அடங்கிய தகவல் ஏடு

APPENDIX -VII

எடை குறைவான குழந்தை பிறப்பதை தடுக்கும் முறைகள் மற்றும் எடை குறைவான குழந்தையை பராமரித்தல் அடங்கிய தகவல் ஏடு

முன்னுரை

இயல்பான பிரசவக்காலம் 9 மாதம் - 7 நாட்களும் பிறந்த பருவம் என்பது பிறந்த பிறகு கருவறையின் 4 வார- வாழ்க்கையும் சேர்ந்ததாகும். இதுவே கருவவுற்ற காலம் முதல் முதிர்ச்சியடையும் வரையிலான வாழ்நாள் காலமாகும்.

பிறப்பு கால எடையளவு அந்த குழந்தையின் உயிர் பிழைக்க நிர்ணயம் செய்யும் கட்டமாகும்.

கையேட்டின் நோக்கம்

தாய்மை என்பது ஒரு பெண்ணிற்கு மிக அழகான மற்றும் ஆனந்தமான அனுபவமாகும். ஆனால் ஒரு சில தாய்மார்களுக்கு பிறக்கவுள்ள குழந்தையின் பிரச்சனைகளால் இந்த நன்மை வாய்ப்பதில்லை. இவற்றுள் மிக குறைந்த எடையுள்ள கருவளர்ச்சி ஒரு காரணமாகும். எடை குறைந்த குறைமாத குழந்தையை பெற்றெடுப்பதும் மிக மென்மையான ஒரு சிசுவிற்கு பராமரிப்பு தருவதை பற்றி ஒரு தாய் மிகவும் மனவருத்தம் கொள்வாள் இதை நிறைவேற்றும் பொருட்டு மற்றும் குறைமாத எடையுள்ள குழந்தையை பற்றிய அடிப்படை தகவல்களை தருவதற்கு அக்குழந்தையின் சிறப்பு தேவைகளை பூர்த்தி செய்வதற்கும் அவற்றை சார்ந்த முறையான வளர்ச்சி மற்றும் மேன்பாட்டில் கையாள்வதற்கும் மற்றும் குறைந்த எடையுடன் பிறக்கும் குழந்தையை தடுக்கவும் இந்த கையேடு உறுதுணையாய் இருக்கும்.

குறைந்த எடையுடன் பிறக்கும் குழந்தை என்றால் என்ன?

பிறப்பின் போது 2500 கிராம் எடையுள்ள எந்த ஒரு குழந்தையும் குறைந்த எடையுடன் ஆன குழந்தை என்று கருதப்படும். இந்த எடை குழந்தையின் கருகால கவனிப்பின் போது வருகிற எடையை கணக்கில் எடுக்க கூடாது. (சிங். 2001)

பிறக்கும் குழந்தையின் எடைகுறைவு விதங்கள் :

அ. 37 வாரங்களுக்குள் பிறக்கக்கூடிய குறை பிரசவம்

ஆ. பருவத்திற்கேற்ற வளர்ச்சின்மை 37 வாரங்களாகியும் அந்த பருவத்திற்கேற்ப வளர்ச்சியின்மையும் ஆகும்.

குறைந்த எடையுள்ள பிறப்பிற்கான காரணிகள்

வ. எண்.	காரணிகள்	பகுப்பு ஆய்வு
1	கர்ப்பினி தாயின் எடை 40 கிலோவிற்கு குறைவாக இருத்தல்	கர்ப்பினி தாயின் சத்துணவு குறைபாட்டினால் கருவின் வளர்ச்சி குறைதல்
2	கர்ப்பினி தாயின் வயது 20 திற்கு குறைவாகவும் 35 திற்கு அதிகமாகவும் இருந்தால்	பலவீனமான தொப்புள் கொடி இணைப்பினால் கருவிற்கு பிராணவாயு மற்றும் சத்துணவு குறைவாக சென்று வளர்ச்சி குன்றுதல்
3	கர்ப்பினி தாயின் உயரம் 145 செ.மி.க்கு குறைவாக இருத்தல்	கர்ப்பினி தாய் தன் குழந்தை பருவத்தில் இருந்து சத்து குறைவினால் பாதிக்க பட்டவராய் இருந்து கருவறை வளர்ச்சி குன்றியவராய் இருத்தல்
4	பண்முறை கருவுற்றல் (உ-ம்) இரட்டையர்	ஒரு கருவறையில் ஒன்றுக்கு மேற்பட்ட குழந்தை உருவானால் அவர்களுக்கு போதிய சத்து கிடைப்பதில்லை
5	கருவுற்ற காலத்தில் இரத்த சோகை	ஹீமோகுளோபின் அளவு குறைவினால் கருவிற்கு செல்லும் பிராண வாயு குறைதல்
6	பல கருக்கல் தறித்தல்	கருவளர்ச்சிற்கு போதிய சத்து கிடைக்காமல் இருத்தல்
7	சிக்கலான கர்ப்பம் உதாரணம் நீடித்த உயர் இரத்த அழுத்தம்	குறைமாத பிரசவம் அல்லது குறைந்த எடை பிரசவம் உருவாகலாம்.

8	மிகுதிபட்ட உடல் உளைச்சல்	கருப்பை சுருக்கத்தினால் குறைபிரசவம் நேரிடுதல்
9	கர்ப்பினி தாயின் கெட்ட பழக்க வழக்கங்கள் (உ-ம்) புகைபிடித்தல்	புகையில் உள்ள நிக்கோடினால் பிராணவாயு குறைந்து சத்துணவு செல்வது தடைபடுதல்

குறைந்த எடையுள்ள குழந்தைகள். இயல்பு எடையுள்ள குழந்தைகளிலிருந்து எவ்வாறு வேறுபடுகிறார்கள்.

வ. எண்	தன்மை	குறைந்த எடை	இயல்பு எடை
1	கருகாலம்	37 வாரங்களுக்கு உள்ளேயே பிறந்து விடுதல் அல்லது 37 வார கருவாகியும் வளர்ச்சியின்மை	37-40 வாரமாகி இயல்பு நிலையில் பிறத்தல்
2	பிறப்பின் போது எடை	2500 கிராமிற்கு குறைவாக இருத்தல்	2500-3000 கிராம் வரை இருத்தல்
3	தோல் நிறம்	ஆழ்ந்த ரோஜா நிறம்	இயல்பு ரோஜா நிறம்
4	அசைவுகள்	குறைமாத குழந்தை மிக இயல்பு நிலையில் இருக்கும் (சோர்வுற்ற நிலையில்)	நிறைவற்ற இயல்பு பிரசவம். இயல்பு குழந்தைகள் உள்சதை கொழுப்பு நிறைந்து அசைந்து காணப்படும்.
5	காது	காது ஜவ்வுகள் முழுமையான வளர்ச்சியற்றும் எளிதில் வளைய கூடியதுமாய் இருக்கும்	காது ஜவ்வுகள் முழுமையான வளர்ச்சியும் முழுவடிவமும் கொண்டு இருக்கும்.
6	அடிப்பாதம்	ஒரு சில மடிப்புகள் காணப்படும்	ஆழ்ந்த பல மடிப்புகள் காணப்படும்
7	தோற்றம்	பலவீனம் மந்தநிலை பால் உறிஞ்சும் தன்மை குறைவு	சுறு சுறுப்புடனும் பால் குடிக்க கண்விழித்தல் உரத்த அழுகை உரிஞ்சும் தன்மை
8	சுவாசம்	குறைவாகவோ அல்லது வேகமாகவோ சத்தத்துடன் சுவாசித்தல்	நிமிடத்திற்கு 30-40 வரை தெளிவான சுவாசம்

குறைந்த எடையுள்ள குழந்தையின் உடற்கூறு செயல்பாடு

A. குறைந்த எடையுள்ள குழந்தையின் உடற் கட்டமைப்பு மிக குறுகலாயும் அதற்கேற்ற செயல்பாடுகள் பின் வரும் பிரச்சனை களை சென்று அடையும்.

- குழந்தையை குளிப்பாட்டிய உடனேயே துவட்ட தவறினால் உடல் வெப்பம் ஆவியாகி சத்து குறையும்.

- பிறந்த குழந்தையை குளிர்ந்த பகுதியில் வைத்திருந்தால் ஈர்ப்புத் தன்மையின் மூலம் சத்து குறையும். எடை குறைவாக பிறந்த குழந்தையின் உடல் பரப்பு அதிகமாக இருப்பதனால் அதனுடைய உடல் வெப்பம் சம நிலையில் பராமரிக்க படுவதில்லை.

குறைந்த அளவு சுவாச செயல்

எடை குறைவாக பிறந்த குழந்தையின் நுரை ஈரல்கள் பலவீனமாக வளர்ந்திருக்கும். அதற்கான அமைப்புகளும் பலவீனமாகவே வளர்ந்திருக்கும் நுரை ஈரல்களின் அமைப்புகளும் பலவீனமாக அமைந்திருக்கும் இதனால் மூச்சு திணறலும் தற்காலிக மூர்ச்சடைப்பும் தோலின் மீது நீல நிறமும் ஏற்படும்.

குறைந்த செரிமான இயக்கம்

- இயல்பான செரிமான அமைப்புகள் முறையான உணவு உட்கொள்ளவும் அதை ஜீரணிக்கவும் தேவைப்படுகிறது.

- ஆனால் எடைகுறைவான குழந்தைக்கு இந்த அம்சங்களும் அவற்றின் திறன்களும் குறைவாகவே இருக்கும். அத்துடன் வயிற்று பகுதியிலிருந்து குடலுக்கு செல்லும் பாதையின் சதை தன்மை பலவீனமாக அமைந்திருக்கும் இதனால் அஜீரணமும் வாந்தியும் ஏற்படும். எடை குறைவான குழந்தைகளுக்கு உணவு அளிக்கும் போது இந்த அம்சத்தை கருத்தில் கொள்ள வேண்டும்.

B. கல்லீரலின் வளர்ச்சியின்மை

பைலிரூபின் சுரப்பி மிகவும் குறைவாக சுரப்பதால் மஞ்சள் காமாலை நிலை உருவாக அதிக வாய்ப்புள்ளது. சர்க்கரை அளவும் குறைவாகவே செரிக்கும் நிலை உள்ளது. இதனால் இரத்தத்திலே சர்க்கரை தன்மை குறைவாகவே காணப்படும். இவற்றிற்கான அறிகுறிகளை கவனமாக கண்டறிந்து சிகிச்சை தரவேண்டும்.

நோய் தடுப்பு அமைப்பு குறைந்து செயல்படும்

இயல்பான பிரசவத்தில் குழந்தைக்கு இம்மியுனோ குளோபின் என்னும் சுரப்பி சில மாதங்களில் மாற்றப்பட்டு நோய் எதிர்ப்பு சக்தி உருவாகும். இவ்வாறாக பிறக்கும் குழந்தைக்கு நோய் எதிர்ப்பு சக்தி இல்லாமல் பல வியாதிகள் உண்டாகும்.

தடுப்பு முறைகள்

- ✓ நேர்முக சிகிச்சை
- ✓ மறைமுக சிகிச்சை

உணவு முறை :

கர்ப்பினி பெண்கள் போதுமான அளவு மற்றும் சரிவிகித உணவை உட்கொள்ள வேண்டும். அந்த உணவு கீழ்கண்ட சத்துகள் நிறைந்ததாக இருக்க வேண்டும்.

- ➢ கலோரி - 3300 கலோரிகள்
- ➢ புரதச்சத்து - 65 கிராம்
- ➢ இரும்புசத்து - 400 மி.கிராம்
- ➢ கால்சியம் - 1 கிராம்

கர்ப்பினி பெண்கள் தினமும் 2 டம்ளர் காய்ச்சிய பால் பருக வேண்டும் பாலில் அதிக புரதச்சத்து மற்றும் கால்சியம் உள்ளது. அது மட்டுமல்லாமல் உணவில் காய்கறிகள், பழவகைகள், முட்டை, மாமிசம் இவைகளை சேர்த்துக் கொள்ள வேண்டும். இவை குழந்தையின் எடையை உயர்த்தவும் தாயின் தேவையை பூர்த்தி செய்யவும் உதவும்.

கர்ப்பினி பெண்களின் சந்திப்பு முறை:

- கர்ப்பினி கெண்கள் தவறமல் பரிசோதனை முகாமிற்கு செல்லவேண்டும்.
- முதல் ஏழு மாதங்களுக்கு மாதத்தில் ஒரு முறையும் அதன் பிறகு மாதத்திற்கு இரண்டு முறையும், இருதி மாதத்தில் வாரத்திற்கு ஒரு முறையும் செல்ல வேண்டும்.
- குறைந்த பட்சம் மூன்று முறையாவது பரிசோதனைக்கு சென்றிருக்க வேண்டும்.

தடுப்பூசி

கருவுற்ற காலத்தில் தவறாமல் இரண்டு தடுப்பூசியை கட்டாயமாக போட்டு கொள்ள வேண்டும்.

மருந்துகள்

மருந்துவர் ஆலோசனை இல்லாமல் தேவையற்ற மாத்திரைகள் உட்கொள்வதை தவிர்க்க வேண்டும்.

கதிர்வீச்சு

- கருவுற்ற காலத்தில் தேவையில்லாமல் கதிர்வீச்சு எடுப்பதை தவிர்க்க வேண்டும்.

- கர்ப்பினி பெண்கள் கீழ்கண்ட ஏதாவது விளைவுகளால் பாதிக்கப்பட்டால் மருத்துவமனைக்கு சென்று மருத்துவ ஆலோசனை பெற வேண்டும்.

  பாதங்களில் வீக்கம், வலிப்பு, தலைவலி, இரத்தபோக்கு, கண்பார்வை குறைதல்.

இரும்புசத்து மாத்திரைகள் :

கருவுற்ற காலத்தில் தவறாமல் இரும்புசத்து மற்றும் கால்சியம் மாத்திரைகள் உட்கொள்ள வேண்டும் குறைந்த பட்சம் 100 மாத்திரைகளாவது எடுத்து கொள்ள வேண்டும்.

ஆரம்பகால பரிசோதனை மற்றும் முறையான சிகிச்சை :

கருவுற்ற காலத்தில் ஏதேனும் கருவினால் விளைவுகள் ஏற்பட்டால் அதற்கு முறையான சிகிச்சைகள் எடுத்துக்கொள்ள வேண்டும்.
(எ.காட்டு) இரத்த உயர் அழுத்தம்

தொற்று நிலை கட்டுப்படுத்தல் :

கருவுற்ற பெண்கள் தங்களை கிருமிகளின் தாக்குதலில் இருந்து பாதுகாத்து கொள்ள வேண்டும். கிருமிகள் தாக்கப்பட்டால் அதற்கு முறையான மருத்துவ சிகிச்சை எடுத்துக்கொள்ளுதல் அவசியம்.

தன் சுத்தம் :

- கர்ப்பினி பெண்கள் தவறாமல் தினமும் குளிக்க வேண்டும்.
- சுத்தமான ஆடைகளை அணிய வேண்டும்.

தூக்கம் மற்றும் ஓய்வு :

கருவுற்ற காலத்தில் தவறாமல் 8 மணி நேரம் தூங்குதல் அவசியம். 2மணி நேரம் பகலில் ஓய்வு எடுத்து கொள்ளுதல் மிகவும் அவசியம்.

உடற்பயிற்சி

வீட்டின் வேலைகளை தவறாமல் செய்யலாம் ஆனால் பலுவான பொருட்களை தூக்கவோ, எடுக்கவோ கூடாது ஏனென்றால் அவை முன்னாதகவே பிரசவ வலியை ஏற்படுத்திவிடும்.

புகைபிடித்தல்

கர்ப்பகாலத்தில் புகைப்பிடிப்பதை தவிர்க்கவேண்டும். ஏனென்றால் அதில் நிக்கோடின் என்ற பொருள் உள்ளது. இது குழந்தைக்கு ஊட்டச்சத்து கிடைக்காமல் செய்து விடும்.

உடலுறவு

கர்ப்பகாலத்தில் இறுதி மாதத்தில் உடலுறவு வைப்பதை தவிர்பது நல்லது.

மறைமுக சிகிச்சை :

- குடும்ப கட்டுப்பாடு
- பொருளாதார வளர்ச்சி மற்றும் சுற்றுபுற வளர்ச்சி ஏற்படுத்துதல்
- மருத்துவ சலுகைகள் தவறாமல் பெறுதல்

குறைந்த எடையுள்ள குழந்தையை பராமரித்தல்

இதுவரை குறைந்த எடையுள்ள குழந்தையின் உடல் அமைப்பு பற்றி தெரிந்து கொண்டோம். இப்போது அவற்றை சமாளிப்பதை பற்றி பார்ப்போம்.

உடல் வெப்ப நிலையை பராமரித்தல்

பிறந்த குழந்தையின் வெப்பநிலை 97.7 முதல் 98.2 பாரன்ஹீட்- க்குள் இருக்க வேண்டும்.

எடை குறைவாக பிறந்த குழந்தையின் உடல் வெப்பம் பின் வரும் முறைகளில் பராமரித்தல்.

- ❖ கதவு அல்லது ஜன்னலருகில் வைக்காமல் இதமான அறை சூழலில் வைக்கவும்.
- ❖ குளிக்க வைத்தவுடன் நீரின்றி துடைக்கவும்.
- ❖ தாயின் தோலோடு குழந்தையின் சதையும் உடம்பில் சேர்த்தனைத்தவாறு இருந்தால் குழந்தையின் உடல் வெப்பநிலை பராமரிக்கப்படும் தாய்ப்பால் சுரப்பம் ஊக்குவிக்கப்படும்.

போதிய சுவாசிப்பு நிலையை பராமரித்தல்

- o இருக்கமான துணிகளை தளர்க்க வேண்டும்.
- o பிறகு சுவாசத்தை கவனிக்க வேண்டும்.
- o குழந்தையை முழுங்கால்கள் வரைஇதமாக வேண்டும்.

குடல் செரிமான இயக்கம் :

- பாலூாட்டியபின் குழந்தை குமட்டினாலோ அல்லது செயலற்றிந்தாலோ
- குழந்தை கேட்டபின் பாலூாட்டவும்
- பாலூாட்டிய பிறகு தோளில் போட்டு அதன் முதுகில் தட்டி தரவும்.
- குழந்தையை வலது புறம் "ஒருகளித்து "படுக்க செய்யவும்.

தொற்றுநிலை கட்டுப்படுத்துதல்

எடைகுறைந்துள்ள குழந்தைக்கு நோய் தொற்றும் வாய்ப்பு அதிகம் உள்ளதால் அதைக்கட்டுப்படுத்த நாம் முயற்சிக்க வேண்டும்.

தொற்று நோயை தடுக்க பின்வரும் நடவடிக்கைகளை கையாளலாம்

- அழுக்கான துணிகளை கையாண்டபிறகும் குழந்தை பாலூட்டும் முன்பும் மற்றும் குழந்தையை தொடுவதற்கு முன்பும் கைகளை சோப்பிட்டு கழுவ வேண்டும்.

- தொற்றுநோய் அல்லது சுவாச வியாதிகள் உள்ளவர்களை குழந்தையருகில் விடவேண்டாம்.

- பார்வையாளர்களை குறைத்து குழந்தையை கையாள்பவர்களையும் குறைக்கவும் குழந்தைகளிடமிருந்து புதிய துணிகளையும் பொருட்களையும் தள்ளிவைத்தால் மேற்கொண்டு கிருமி அணுகமால் இருக்கும்.

- புதிய துணிகளையும் பழைய துணிகளையும் பிரித்து ஆளவும். நுண்கிருமிகள் அணுகாமலிருக்கும்.

- குழந்தையை பெற்ற தாய் தினமும் சோப்பால் குளித்து மாற்றுடுப்புகளை அணிந்தால் தொற்று கிருமிகள் குறையும்.

- கிருமி நாசினி கொண்டு அறையை சுத்தம் செய்யவும் வெருமனே துடைத்தால் சுவாசக் கோளாறு ஏற்படும்.

- குழந்தையின் துணிகளை டெட்டால் போன்ற கிருமி நாசினியில் ஊறவைத்து பிறகு துவைக்கவும். சூரிய ஒளியில் உலர்த்தவும்.

- தடுப்பூசி மூலம் குழந்தைக்கு நோய் வராமல் பாதுகாக்கவும். தடுப்பூசி அட்டவணைப்படி தடுப்பூசி போடவும்.

குறைந்த எடையில் பிறந்த குழந்தைக்கான சத்துணவு முறை :

முதல் மூன்று மாதம் தாய்ப்பால் மட்டும் தான் சிறந்த உணவு. ஆறுமாதம் வரை தாய்ப்பால் தருவது சிறந்தது. ஆனால் அவர்கள் முழுமையான விழுங்கும் தன்மையில்லாததானல் பின் வரும் திட்டத்தை கையாளவும். இரண்டு மணி நேரத்திற்கு ஒருமுறை பாலூட்டவும் அதிக நேரம் பாலுட்டவில்லை என்றால் இரத்ததில் சர்க்கரையளவு குறையும். ஒவ்வொரு குழந்தையின் தாய்ப்பால் தேவை மாறுபடுவதால் ஆரம்ப காலத்தில் ஒவ்வொரு 10 நிமிடத்திற்கும் மார்பகம் மாற்றி இரண்டு மணி நேரம் வரை தாய்ப்பால் தரலாம். படிப்படியாக இடைவெளியை அதிகரித்து குழந்தைக்கு தேவைப்படும்போது பால் தரவும். குழந்தைக்கு தேவை போதும் என்ற நிலை

வரும் வரை தாய் மிகப்பொறுமையாகவும் கவனமாகவும் நம்பிக்கையுடன் பால் தரவும்.

சீம்பால் தருவது மிக முக்கியமான ஒரு கடமை.

- ❖ இரண்டாண்டுகள் வரை தாய்ப்பால் தரலாம். ஆறுமாதத்திற்கு பிறகு தாய்ப்பாலுடன் இணை உணவளிப்பது அவசியம்.

- ❖ பின்வரும் உணவு வகைகளையும் முறைகளையும் கையாள்வது சிறந்தது.

- ❖ ஒரு வயதில் குடும்ப உணவுடன் நாலைந்து வகையான உணவினை குழந்தையுடன் பகிர்ந்து உண்ணலாம்.

தினமும் கவனிக்க வேண்டியவை:

- ❖ உடல் சுத்தம் கண் பாதுகாப்பு

- ❖ தினமும் குளிக்கும் போது கண்களை துணியால் துடைக்கவும். காதுகளையும் மூக்கின் அடிப்பாகத்தையும் சுத்தம் செய்யவும்.

தொப்புள் கொடி கவனிப்பு

- தொப்புள் கொடியை சுத்தமான நீரால் கழுவவும்.
- நெய்யோ, மாட்டு சானமோ/ அடுப்பு கரித்துாளோ தொப்புள் கொடியிலிட வேண்டாம்.
- தொப்புளில் பத்து சீழ்க்கட்டிகள் மேலிருந்தால் மருத்துவரையனுகவும் அல்லது ஆரம்ப சுகாதாரமையத்தை அணுகவும்.

தோலின் பாதுகாப்பு

- ❖ வெதுவெது என்ற நீரில் தொட்டு பிழிந்த சுத்தமான துணியால் குழந்தையை நன்றாக துடைக்க வேண்டும்.

- ❖ கை கக்கத்திலும் (அக்குள்) கால் அரையாப்பு மற்றும் ஆண் பெண் குறியீடுகளிலும் மற்றும் புட்டத்தையும் நன்றாக உலர துடைக்கயும்.

- ❖ இரண்டு மணி நேரத்திற்கு ஒரு முறை பக்கவாட்டங்களை மாற்றவும் ஒரே பக்கமாக படுத்தால் தோலுறிவும் அபாயம் உள்ளது.

குளியல்

போதிய தாய்ப்பால் மற்றும் எடை கூடுதலும் சுறுசுறுப்பாக இருக்கும் போது குழந்தையை குளிக்க வைக்கலாம். பால் குடித்த உடனே குளிக்க வைத்தால் ஜீரணம் தாமதப்படும். குளியலுக்கு முன் குழந்தையை எண்ணையில் நன்றாக தேய்த்து இரத்த ஓட்டத்திற்கு சரி செய்யவும். இளங்காலை சூரியனில் குழந்தையை காண்பித்தால் வைட்டமின் "டி" உடலில் சேரும்.

குழந்தையின் ஆரோக்கியத்திற்கு பின்வரும் கோட்பாடுகளை கடைப்பிடிக்கலாம்.

- முறை சார்ந்த மருத்துவ பரிசோதனை தவறாமை.
- தன் சுத்தம் மற்றும் சுற்றுப்புற சுத்தம் பேணவும்.
- தவறாமல் தாய்ப்பால் ஊட்டவும்.
- 6 மாதத்திற்கு பிறகுதான் தாய்ப்பாலுடன் இணை உணவு தரவும்.
- சுத்தமான காற்றுவசதி தரவும்.
- தட்ப வெப்ப நிலைக்கேற்ப உடுப்புகளை உடுத்தவும்.
- போதிய ஓய்வும் உறக்கமும் தேவை.
- தடுப்பூசி அட்டவணைப்படி போடவும்.

முடிவுரை

அனைத்து குறைந்த எடை கொண்ட குழந்தைகள் மற்ற இயல்பு குழந்தைகளைப் போன்ற அறிவுத்திறன் பெற்றவையே. இவர்களுக்கும் உங்களுடைய அன்பும் அரவணைப்பும் இருந்தால் தான் அவர்களும் வளர்ச்சியும் முன்னேற்றமும் அடைவார்கள். ஆகவே அவர்களையும் பாதுகாக்கவும்.

நன்றி

APPENDIX-VIII

VISUAL AIDS

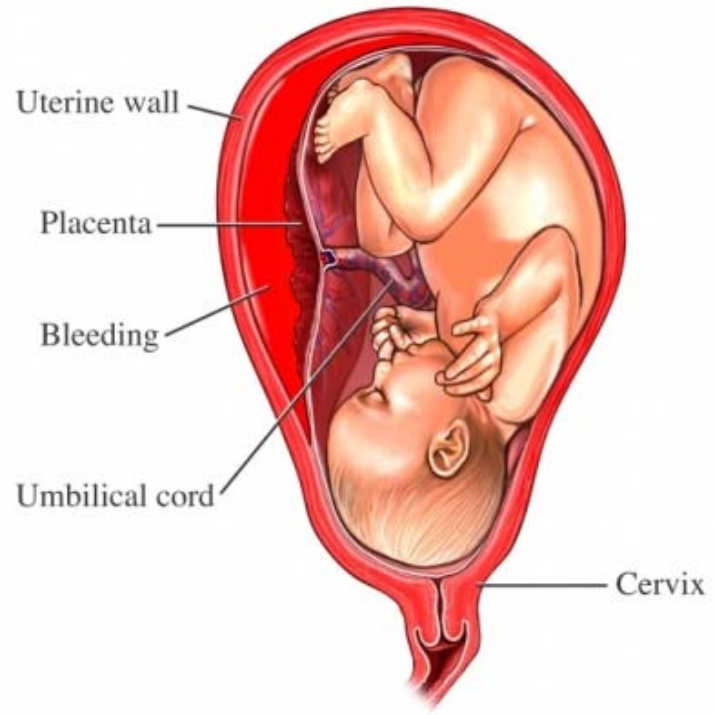
PREVENTION AND CARE OF LOW BIRTH WEIGHT BABY

NORMAL NEW BORN

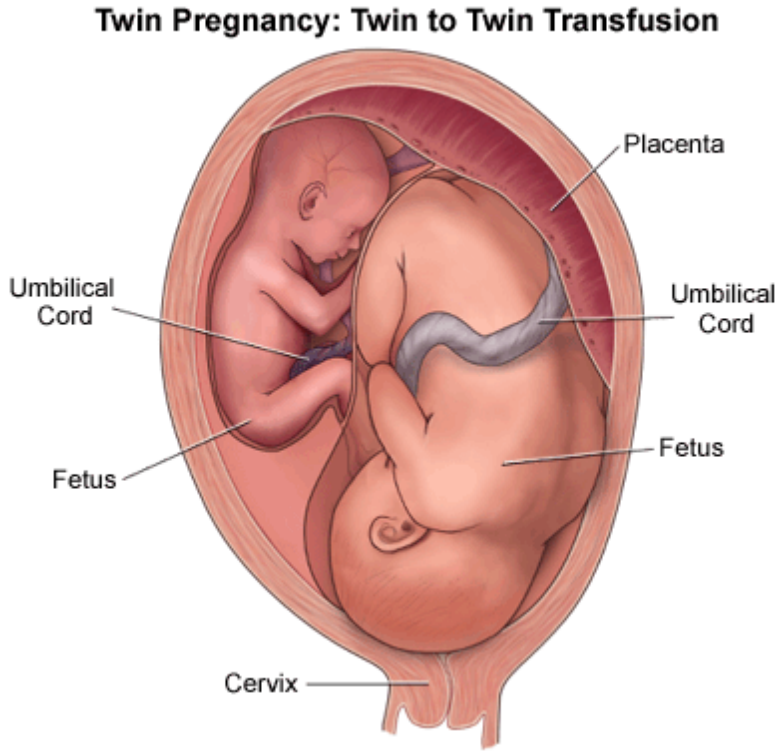
LOW BIRTH WEIGHT BABY

CAUSES OF LOW BIRTH WEIGHT

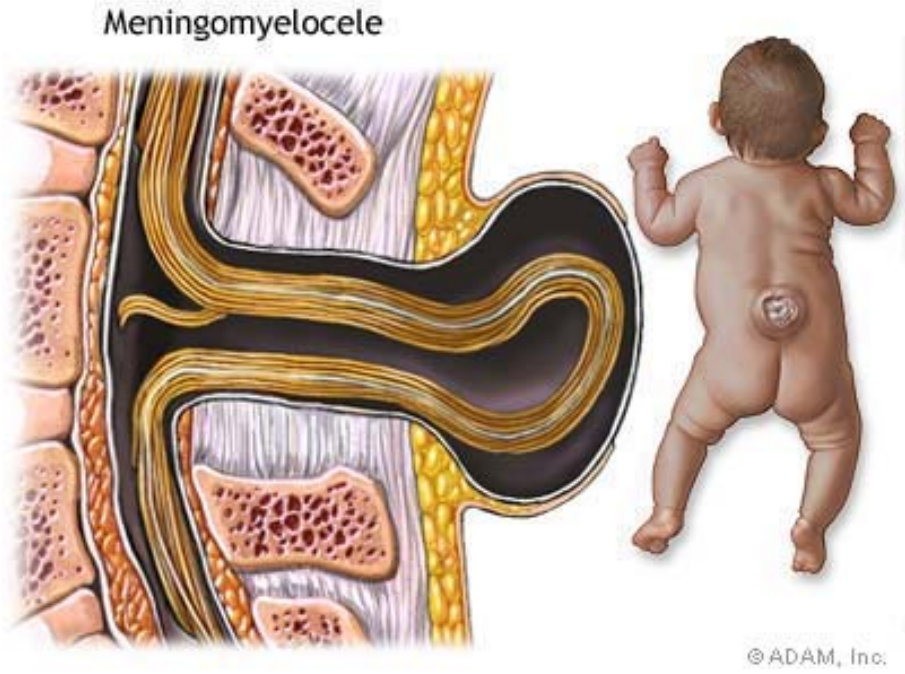
PRE MATURE OF DELIVERY



MULTIPLE PREGANANCY



BABY AFFECTED WITH ANY CONGENITAL ANOMALIES



MATERNAL STRESS

SMOKING DURING PREGNANCY

MAINTENANCE OF THERMO REGULATION

BREAST FEEDING

BURBING OF THE BABY AFTER FEEDING

PREVENTION OF LOW BIRTH WEIGHT BABY

REGULAR ANTENATAL CHECKUP AND ADVICE

ANTENATAL DIET

BALANCE DIET

Consuming of milk is essential during Pregnancy

IMMUNIZATION

ADEQUATE REST

AVOIDENCE OF SMOKING

YOGA

MATERNAL STRESS SHOULD BE AVOIDED